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DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1990

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

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PART 6

Page

Communications, Command and Control 1

Shipbuilding Industrial Base 149

Navy Procurement:

  Aircraft 349

  Weapons and Other 443

  Shipbuilding and Conversion 583

Spare Parts Management 679

Reprogrammings, Fiscal Year 1989 815

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DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1990

TUESDAY, MARCH 14, 1989.

COMMAND, CONTROL AND COMMUNICATIONS—OVERVIEW

WITNESSES

GORDON A. SMITH, ASSISTANT SECRETARY OF DEFENSE FOR COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE

THOMAS P. QUINN, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE

NATHANIEL M. CAVALLINI, DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR PLANS AND RESOURCES, OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE FOR COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE

INTRODUCTION

Mr. MURTHA. The Committee will come to order.

This afternoon the Committee will hold an overview hearing on the Communications, Command and Control Budget of the Department of Defense. The total request for these programs is $21.3 billion, which is a decline in funding from fiscal year 1989 when measured in constant dollars. The Committee is interested in all aspects of the many important programs in the C3 budget. Future hearings with the individual services will cover many details on the C3 programs.

The witnesses at this afternoon's hearing are Dr. Gordon P. Smith, Assistant Secretary of Defense for Communications, Command and Control; Dr. Thomas P. Quinn, Principal Deputy Assistant Secretary of Defense, and Mr. Nathaniel M. Cavallini, Deputy Assistant Secretary of Defense for Plans & Resources, Office of the Assistant Secretary of Defense for Communications, Command, Control & Intelligence.

We want to welcome Dr. Smith and Dr. Quinn today to the committee.

Dr. Smith, this is your first time before the committee?

Dr. SMITH. Yes, sir.

Mr. MURTHA. We will put your biography along with your detailed statement in the record, and if you will summarize your statement for us we will ask some questions. Please proceed.

SUMMARY STATEMENT OF DR. SMITH

Dr. SMITH. Thank you very much, sir.

Sir, I am very pleased to be here and be able to present and discuss the Department of Defense's biannual budget for fiscal year 1990 and 1991 for command, control and communications.

The programs supported by this budget request provide the communication networks, warning systems, command facilities and information systems needed for decision-making and force management.

I am accompanied by Dr. Quinn who is my principal deputy, but I also have my Deputy for Plans and Resources, Mr. Cavallini, who might be able to help us with some budget questions.

MODERNIZATION OF C3 SYSTEMS

In the early eighties, we began modernizing our C3 systems. To realize how much better our systems are today, you need only to compare weaknesses that existed in our ability to command and control our military forces effectively.

These included the inability of our strategic C3I systems to endure a nuclear attack and that, of course, in turn, weakened our deterrent effect. We are now deploying things that will help us better respond to an attack, such things as the GWEN network, the groundwave emergency network, that would help us to talk to our bomber bases in a stressed environment. That is not a futuristic solution, sir. We are actually deploying those relay nodes and we have about 50 in the field now.

We are also producing low-frequency and very low-frequency miniature receiver terminals for installation in our strategic bombers. These will improve communications between our airborne command posts which can survive an attack, and our strategic bomber force.

Similarly, our ability to communicate with the strategic submarine force will improve as we take out the aging TACAMOs and replace them with the new and more enduring E–6A aircraft.

All of these systems are planned to be fully operational in the next few years.

However, a key long-term solution to improving the ability of our strategic forces to operate during a nuclear attack rests on deploying the MILSTAR Satellite Communications System. Using advanced technology along with survivable ground-based control stations, the system is technically and operationally designed to function through and beyond a major nuclear attack.

TACTICAL C3 SYSTEMS

Back in the early eighties, we also saw a lack of interoperability and that existed among our tactical C3 systems on the ground, in the air and at sea.

This is being overcome as we continue to field new tactical communications equipment such as the SINCGARS and the Mobile Subscriber equipment, and that is incidentally being put into place very rapidly and very well.

Interoperability will be further enhanced as we continue with the design integration and begin production of the joint tactical information distribution system.

Joint tactical air control will also be substantially improved as we procure the Air Force modular equipment and Marine Corps tactical air operations modules.

We also had further deficiencies which prevailed at the beginning of this decade throughout our aging and fragile worldwide communication systems. In response to that fragility, we began establishing a new long-distance telephone system, the defense switched network, to replace the automatic voice network. Similarly, our long-haul data communications have improved with the establishment of the defense data network.

COMMUNICATIONS SECURITY

Most disturbing was the vulnerability of our communications systems to the compromise and exploitation of sensitive information.

Since the beginning of this decade, a variety of communications security equipment has been procured and in an effort to reduce this nation's number one voice communications vulnerability, we began fielding the STU–III telephone unit throughout the Federal Government and in the facilities of defense contractors.

Responding to the threat of computer attacks, we established the Computer Security Center to improve our computer security and protect information vital to our national security. We have also started several initiatives aimed at central coordination and increased awareness, and intensified our research and development efforts to reduce vulnerability to virus and hacker attacks.

These are only a few of the problem areas where successful solutions were implemented, and progress is continuing. Although much has been accomplished, the job is far from complete.

FISCAL YEAR 1990 BUDGET REQUEST

Budget constraints over the past couple of years have forced us to scale back some programs such as the Over-the-Horizon Backscatter radar system.

The fiscal year 1990 and 1991 budget request reflects the weighing of priorities that must occur in a fiscally constrained environment while allowing the momentum of the C3 modernization effort to continue.

However, reductions from the request will certainly slow this momentum down and necessitate the termination of additional programs and the deferral of others, possibly negating some of our past gains.

We emphasize the importance of maintaining the C3 program and strongly urge your support for the programs supported by this budget request.

I would like now for you to take a look at the handout that you have in front of you.

C3 RESOURCES BY APPROPRIATION

I have three charts which show the budget as we currently see it, and the first chart, for instance, is by appropriation.

You will see that in 1989, we had a total of $21 billion, and in 1990, the request is for only a further $.3 billion, which represents a very small increase.

Now, C3, as a matter of fact, has approximately seven percent of the overall DOD budget, and what we are asking by way of increase here is a 1.4 percent increase over last year which, in fact, is a decrease in real terms.

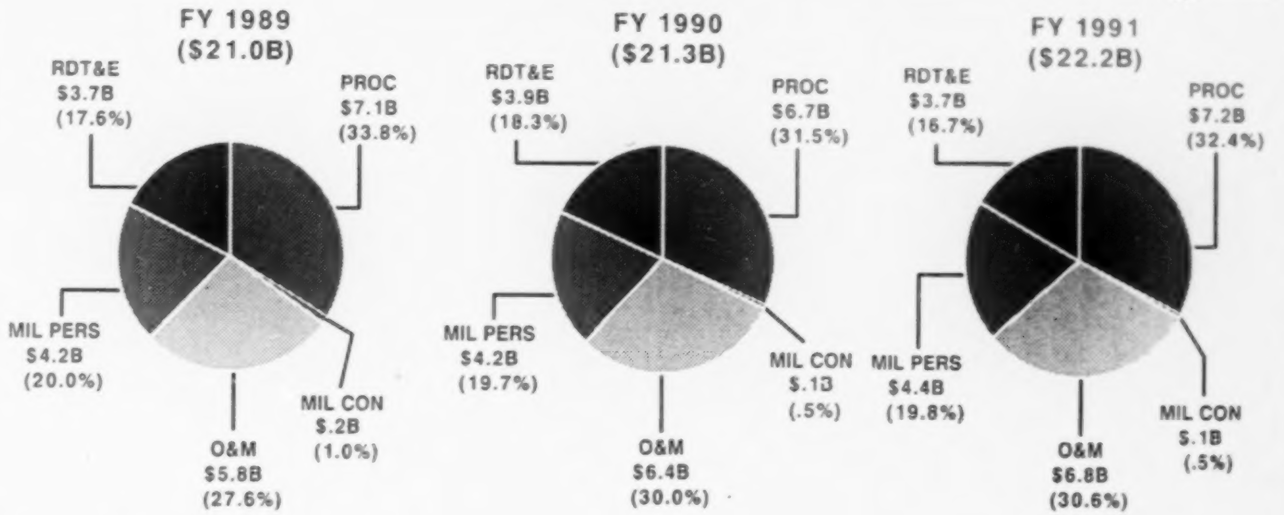
If you look to the 1991 increase, it shows a little bit more, as a matter of fact, $.9 billion, which represents approximately 4.1 percent increase which again is little more than the cost of inflation increase.

So what you see in these charts, sir, is the fact that approximately half of the C3 budget is in investment, by that, I mean the RDT&E and procurement is the 50 percent investment with a slight bit of military construction and the rest is for military personnel, their salaries and pay for the operations and maintenance budget.

[Chart follows:]

C³ RESOURCES
FY 1990 / 1991 PRESIDENT'S BUDGET BY APPROPRIATION

($ in Billions)



JANUARY 1989
DoD FYDP

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(CHART 1)

C3 RESOURCES BY COMPONENT

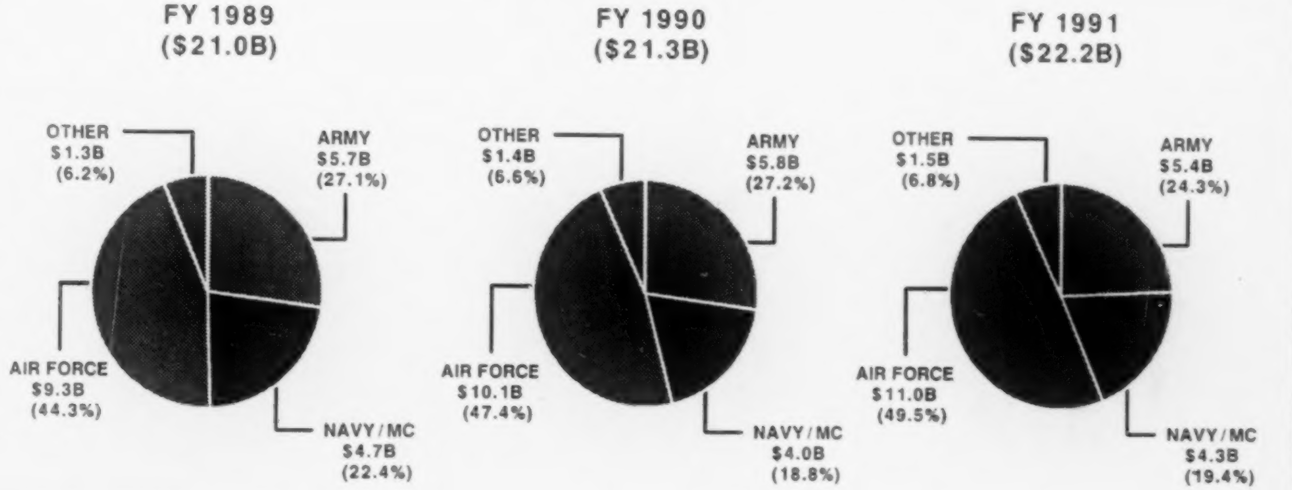
Dr. **Smith.** If you look at the next chart, we have broken down our resources there by DOD component and it is rather interesting to see that the Air Force has the giant's share of the pie, approximately 50 percent of the pie, in 1990, and almost exactly 50 percent of the pie in 1991.

This is partly because of the sensors that are buried in there, the large sensors like ——— BMEWS, and the early warning sensors in general are buried in the Air Force budget.

I should point out that where you see other, that refers mainly to the Defense Communications Agency and they are the ones that are responsible for long-haul communications, base operations communications, and also it has my budget in there, the OSD budget, which is very small in comparison with DCA.

[Chart follows:]

C^3 RESOURCES
FY 1990 / 1991 PRESIDENT'S BUDGET
BY DOD COMPONENT
($ in Billions)



JANUARY 1989
DoD FYDP

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(CHART 2)

C3 RESOURCES BY MISSION AREA

Dr. SMITH. On my final chart, which is a little bit busy, we have broken it down by mission area.

For example, you can see strategic C3 and in that particular area, we have things like BMEWs, the Thule upgrade, Flyingdales upgrade in England, the sites that are put in for PAVE PAWS, the radar that will detect sea-launched ballistic missiles; we have over-the-horizon backscatter in there, MILSTAR and so on.

In the theater and tactical C3, we have the programs such as SINCGARS, MSE, the Army's Data Distribution System, the Position Locating Reporting System, and other Army systems, modular control equipment, et cetera, and in the navigation and warfare C3, we have things like NAVSTAR, and the GPS program.

When we come down to the information systems, we have, of course, the defense communication system. Electronic combat provides all sorts of jamming devices, flares, chaff, research and development into that area, et cetera.

So that, in summary, gives you an idea of the way that we divide up the resources among, first of all, the components and then among the various mission areas.

[CLERK'S NOTE.—Classified chart removed.]

SUMMARY

So, in conclusion, sir, of my formal brief statement, I would like to ask for your support of the fiscal year 1990 and 1991 biannual budget request for C3I programs. We have accomplished much over the past few years in eliminating severe deficiencies in our C3 facilities. Unfortunately, others remain. This budget request would provide the resources needed to continue those programs. It is not a request for embarking upon new starts, but is a request that we finish efforts which began several years ago which have demonstrated success, and in many cases which are in their final phases of completion. Seeing them through to completion will require the investment of an adequate level of resources, and I ask for your support, sir, and your affirmation in recognition of C3's vital role in maintaining a strong national defense.

This concludes my statement and I will be only too pleased to try and answer any question you might have.

Mr. MURTHA. Thank you.

[The biographical sketch and statement of Dr. Smith follows:]

GORDON A. SMITH
ASSISTANT SECRETARY OF DEFENSE
(COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE)

After nomination by the President and confirmation by the Senate, Dr. Gordon A. Smith was sworn in as Assistant Secretary of Defense (Command, Control, Communications and Intelligence) (ASD(C3I)) on 24 May 1988.

Prior to his appointment as ASD(C3I), Dr. Smith served as the Deputy Director, Strategic Defense Initiative Organization (SDIO), Office of the Secretary of Defense, from April 1986 to May 1988.

Dr. Smith graduated in mechanical engineering from Swindon College, United Kingdom, in 1957 and is a Chartered Engineer of the U.K., as well as a registered Professional Engineer of the state of Maryland. He holds a Master of Science degree and a doctorate in the Management of Science, Technology and Innovation from George Washington University. His doctoral dissertation examined the Department of Defense's major system acquisition process.

Before his appointment as Deputy Director, SDIO, Dr. Smith was president of Fairchild Space Operations Co. of Germantown, Md. Fairchild Space Operations, a division of Fairchild Industries, Inc., was formed to provide and operate unmanned space platforms for lease by both private industry and government agencies for space research, observation and manufacturing.

Prior to this appointment, Dr. Smith held several important positions in the research, development, testing and engineering areas, including program manager, engineering director and vice president of systems effectiveness. He became corporate vice president at Fairchild Industries in 1983.

During the period from September 1982 to September 1983, Dr. Smith was a congressional fellow, sponsored by the American Institute of Aeronautics and Astronautics and served as a staff member on the House Subcommittee on Space Science and Applications, U.S. House of Representatives.

From November 1966 to January 1971 when he joined Fairchild, Dr. Smith worked on space research and development for Conductron Corp., a subsidiary of McDonnell-Douglas Corp. He was head of engineering design, and program manager for a number of ICBM penetration aid devices. His previous experience included work as a project engineer at DeHavilland Aircraft of Canada in charge of a miniature cryogenic cooling system for infrared sensors, and as a project officer working on the Bloodhound surface-to-air weapon system for the British Aircraft Corporation.

Dr. Smith has published numerous papers in the fields of space mechanisms, deployable structures and management. As an adjunct professor at George Washington University, he taught both Program Management and International Science and Technology.

Dr. Smith is married to the former Betty Bryant and resides in Derwood, Maryland.

June 1988

DEPARTMENT OF DEFENSE

OPENING STATEMENT

BY

DR. GORDON A. SMITH
ASSISTANT SECRETARY OF DEFENSE
(COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE)

BEFORE THE
DEFENSE SUBCOMMITTEE
HOUSE APPROPRIATIONS COMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

MARCH 14, 1989

I. INTRODUCTION

(U) Mr. Chairman and members of the committee, I appreciate this opportunity to present and discuss the Department of Defense's biennial budget request for Fiscal Years 1990 and 1991 for Command, Control, and Communications or C3 programs. The programs supported by this budget request provide the communications networks, warning systems, command facilities, and information systems needed for military decision making and force management.

(U) My testimony today will summarize what we have been able to accomplish, with the backing of the Congress, and outline what we are proposing for the future. Although intelligence programs are outside the scope of today's presentation, they are an equally important part of the integrated C3I support necessary for effectively managing our forces.

(U) In the early 1980's, we began modernizing our C3 systems. To realize how much better our C3 capabilities are today, you need only to compare them to where we were a few years ago. At that time, substantial weaknesses existed in our ability to command and control our military forces effectively.

(U) These included the inability of our strategic C3I systems to endure a nuclear attack which weakened our nuclear deterrent. We are now deploying Ground Wave Emergency Network or GWEN radio relay stations and receivers to strengthen our nuclear deterrent. It is not a futuristic solution, but relies on proven technology to help ensure communications during an attack. We are also producing LF/VLF Miniature Receive Terminals (MRT's) for installation in our strategic bombers. These will improve communications between our airborne command posts, which can survive an attack, and our strategic bomber force. Similarly, our ability to communicate with the strategic submarine force will improve as the aging EC-130 TACAMO aircraft are replaced with new and more enduring E-6A aircraft. All of these systems are planned to be fully operational in the next few years. However, a key long-term solution to improving the ability of our strategic forces to operate during a nuclear attack rests on deploying the Milstar satellite communications systems. Using advanced technology, along with survivable ground-based control stations, the system is technically and operationally designed to function through and beyond a major nuclear attack.

(U) A lack of interoperability also existed among the tactical C3 systems of our ground, air, and naval forces. This is being overcome as we continue to field new tactical communications equipment such as the Single Channel Ground and Airborne Radio System (SINCGARS) and Mobile Subscriber Equipment (MSE). Interoperability will be further enhanced as we continue with the design integration and begin production of Joint Tactical Information Distribution System (JTIDS) terminals. Joint tactical air control will also be substantially improved as we procure the

Air Force's Modular Control Equipment (MCE's) and Marine Corps' Tactical Air Operations Modules (TAOM's).

(U) Further deficiencies prevailed at the beginning of this decade throughout our aging and fragile worldwide communications systems. In response, we began establishing a new, long-distance telephone system, the Defense Switched Network (DSN) to replace the Automatic Voice Network (AUTOVON) which is over 20 years old. Similarly, our long-haul data communications have improved with the establishment of the Defense Data Network (DDN).

(U) Most disturbing was the vulnerability of our communications and information systems to the compromise and exploitation of sensitive information. Since then, a variety of additional communications security (COMSEC) equipment has been procured, and, in an effort to reduce this nation's number one secure voice vulnerability, we began fielding STU-III secure telephone units throughout the federal government and in the facilities of defense contractors. Responding to the threat of computer attacks, we established the Computer Security Center to improve our computer security (COMPUSEC) and protect information vital to our national security. We have also started several initiatives aimed at central coordination and increased awareness and intensified our research and development efforts to reduce our vulnerability to virus and hacker attacks.

(U) These are only a few of the problem areas where successful solutions were implemented and progress is continuing. Although much has been accomplished, the job is far from complete. Budget constraints over the past couple of years have forced us to scale back programs, such as the Over-the-Horizon Backscatter (OTH-B) Radar System, and to terminate others, such as the Inter-Service Agency Automated Message Processing Exchange (I-S/A AMPE).

(U) The FY 1990 and FY 1991 budget request reflects the weighing of priorities that must occur in a fiscally constrained environment, while allowing most of the overall momentum of the C3 modernization effort to continue. However, reductions from the request will certainly slow this momentum by necessitating the termination of additional programs and the deferral of others and, possibly, by negating past gains. We emphasize the importance of maintaining the overall C3 program on its course of progress and strongly urge your support for the programs supported by this budget request.

II. C3 RESOURCE SUMMARY

(U) Of the $306.6 billion in Total Obligational Authority (TOA) requested for DoD in FY 1990, $21.3 billion or slightly less than 7% is allocated to C3 programs. For FY 1991, $22.2 billion, a similar percentage of the DoD budget, is requested for C3 programs. This represents an increase of only $0.3 billion or

1.4% between the amounts appropriated in FY 1989 for C3 and the FY 1990 request, an amount that reflects a real decline in the budget when inflation is excluded. Between FY 1990 and FY 1991, an increase of $0.9 billion or 4.2% is requested, an amount only slightly more than that needed to account for inflation, but still allowing no real growth from the FY 1989 funding levels. In terms of the long-term trend, the real funding trend has been downward since FY 1988. In constant dollars, the funding levels requested in FY 1990 and FY 1991 are both less than the level of funding appropriated in FY 1986.

(U) The message is unmistakenly clear. We must expect a slowing down of the buildup that was experienced in the early to mid 1980's and, at the same time, we must continue to move forward with eliminating the deficiencies which continue to exist in our C3 capabilities. This biennial budget request for C3 programs balances these conflicting realities in an attainable and cohesive program.

(U) To help us achieve a better overview and to insure the integration of all C3 systems with the forces they support, the total C3 program is divided into specific mission areas. Each mission area consists of a group of programs and associated resources mutually dedicated to addressing specific operational requirements. Three charts portraying the overall resources for C3 for FY's 1989, 1990, and 1991 aggregated by appropriation, DoD component, and mission area, as well as tables displaying the funding for major C3 RDT&E and procurement programs, are appended to the end of this statement.

III. MISSION AREA OVERVIEWS

(U) Strategic C3, Theater and Tactical C3, and Defense-wide C3 are the major C3 mission areas. The following overviews highlight their objectives and summarize the status of key programs in each of these mission areas.

A. Strategic C3

(U) The Strategic C3 mission area includes the warning systems and sensors; the command centers; and the communications systems required to assure connectivity between sensor sites, command center locations, and nuclear capable forces.

(U) At the beginning of this decade, severe shortcomings existed in our strategic C3 systems which jeopardized our ability to maintain a strong nuclear deterrent. Due to their age and vulnerability to attack, deficiencies permeated all aspects of these systems. Responding to this situation, the President directed that our strategic C3 capabilities be modernized as an integral part of the Strategic Forces Modernization Program. As a result, we began a concentrated effort in 1981 to rebuild our attack warning/attack assessment (AW/AA), command and control, and communications connectivity capabilities. These efforts have paid off with the deployment of new equipment and systems, and we are continuing programs to resolve the remaining deficiencies.

(U) In the area of AW/AA, these programs are subdivided into those aimed at intercontinental and submarine launched ballistic missile threats and those associated with the atmospheric or air-breathing threat.

(U) To provide improved warning of ballistic missiles, two new PAVE PAWS early warning radars have been deployed, one in Georgia and one in Texas. Together with the PAVE PAWS sites in California and Massachusetts, and the Perimeter Acquisition Radar Attack Characterization System (PARCS) in North Dakota, they comprise a five site phased array warning network. Similarly, the Ballistic Missile Early Warning System (BMEWS) has been improved with upgrades at Thule, Greenland, and will be improved further when the upgrades underway at Fylingdales, United Kingdom, and the upgrades planned for Clear, Alaska are completed. The FY 1990 and FY 1991 budget request will continue the testing of and upgrades to these systems needed to meet the Soviet threat.

(U) The Over-the-Horizon Backscatter (OTH-B) radars and North Warning System (NWS) are the primary radar systems for early warning and assessment of an atmospheric attack.

(U) The OTH-B system will warn of an attack by bombers and air-to-surface missiles at all altitudes at ranges of between 500 and 1800 nautical miles along the east, west, and southern approaches to North America. The three sector east coast system is in place and undergoing testing. The three sector west coast system is under construction and is expected to begin testing in FY 1990. Work on the Alaskan Radar System is beginning, and procurement of the second of two Alaskan sectors is planned for FY 1990. Procurement of the first of two sectors for the Central Radar System is planned for FY 1991.

(U) Replacement of the 1950's vintage Distant Early Warning (DEW) line with the North Warning System (NWS) is nearing completion and is substantially improving our capability to detect advanced aircraft and cruise missiles along the northern approaches to North America. Procurement of the last 20 unmanned short range radars is planned for FY 1990, and the NWS should achieve full operational capability in FY 1992.

(U) We are also moving ahead with increases in the capacity, survivability, and endurance of our strategic communications systems.

(U) The Ground Wave Emergency Network (GWEN) is our near-term program for improving strategic connectivity in the Continental United States (CONUS) at relatively low cost. It will provide nuclear hardened, proliferated links to support critical communications. The current 56 relay node Thin Line Connectivity

Capability (TLCC) interconnects command centers, warning sites, and strategic aircraft bases. It is being expanded to 96 nodes and additional users will be added. The FY 1990 and FY 1991 program focuses on procuring portable communications terminals and EC-135C airborne terminals.

(U) In order to increase their range, resistance to jamming and nuclear effects, and message accuracy, our very low frequency (VLF)/low frequency (LF) communications capabilities are being improved. The FY 1990 and FY 1991 budget request supports the addition of VLF/LF Miniature Receive Terminals (MRT's) in B-1B and B-52H aircraft and continues the development of improved VLF/LF transmission capabilities from EC-135 and E-4B airborne command post aircraft and E-6A TACAMO communications relay aircraft.

(U) While these upgrades and new systems represent substantial gains, one of the most important solutions to our strategic communication requirements rests with our satellite systems.

(U) The Fleet Satellite Communications (FLTSATCOM) system provides worldwide ultra high frequency (UHF) communications to mobile users. This includes communications to all Navy ships, submarines, and selected aircraft. The system also satisfies the equatorial satellite communications requirements of the Air Force. The current program supports the acquisition of new follow-on UHF spacecraft to replace existing FLTSATCOM spacecraft as their performance becomes operationally unacceptable. The FY 1990 request fully funds the procurement of the second and third follow-on spacecraft, and the FY 1991 request provides three additional spacecraft, as well as continued production support and launch services. A total of nine satellites are planned for procurement through FY 1992.

B. Theater and Tactical C3

(U) Theater and tactical C3 systems provide military commanders with the facilities and communications equipment necessary for managing conventional forces. The overall goal of our theater and tactical C3 program is to provide the secure, interoperable, and enduring tactical C3 systems needed for US and allied forces to be effective. In pursuit of this goal, we are continuing a number of programs to improve our capabilities and meet our future theater and tactical C3 requirements.

(U) Providing the architectural and planning guidance needed to develop and field interoperable systems is a key objective of the theater and tactical C3 area. The Joint Tactical Command, Control, and Communications Agency (JTC3A) continues to provide full time assistance to the unified and specified commands in achieving this objective. Their efforts are paying dividends by identifying solutions to potential C3 interoperability problems, and their work on tactical C3 architectures and interoperable military standards is being widely accepted.

(U) After an architectural framework is laid, it is necessary to transition concepts into realities in order to counter the projected threat environment. In this regard, equipment that was once only on the drawing boards is now being fielded.

(U) Our tactical C2 capabilities are being substantially improved with the fielding of the Maneuver Control System (MCS). The MCS is an automated tactical C2 system which provides a network of computer terminals to process combat information for battle staffs. MCS equipment is currently in production, and fielding of the equipment is expected to continue. The funding request for FY 1990 and FY 1991 also supports the evolutionary expansion of MCS capabilities.

(U) Another item being fielded is the Army's and Marine Corps' Single Channel Ground and Airborne Radio System (SINCGARS). This program provides a new family of manpack, vehicular, and airborne, secure single channel very high frequency (VHF) radios. A major acquisition program, procurement of SINCGARS equipment is planned to continue past FY 1992.

(U) The FY 1990 and FY 1991 budget request also continues the acquisition of Mobile Subscriber Equipment (MSE), a communications system to provide corps and division users the equivalent of automatic and secure dial telephone service for both voice and data. This multibillion dollar program is an example where RDT&E costs were avoided by capitalizing on available technology. This nondevelopmental approach is allowing us to improve Army communications in a much shorter time due to the elimination of a long development cycle.

(U) The joint service Joint Tactical Communications Program (TRI-TAC) continues to produce and field a variety of modern tactical communications equipment with increased capacity and security to support the data and voice, switching, and transmission needs of our tactical forces. The FY 1990 and FY 1991 funding request for TRI-TAC provides the least cost option for replacing obsolete analog communications equipment with more modern and reliable digital equipment.

(U) Another major joint service program, the Air Force's Modular Control Equipment (MCE) and the Marine Corps' Tactical Air Operations Module (TAOM), is providing transportable, modularized systems for improved command and control of air operations and air defense. These systems will replace aging command and control equipment used in the Air Force Tactical Air Control System (TACS) and the Marine Air Command and Control System (MACCS). MCE/TAOM will support air warfare operations through the effective control of fighter aircraft and surface-to-air missiles, as well as accomplishing surveillance, air traffic control, and electronic warfare missions. The first production units will be completed this summer for first article testing. The FY 1990 and FY 1991 budget request will fund additional units and continue the product improvement program.

(U) The major program for worldwide navigation and positioning, the Navstar Global Positioning System (GPS), is substantially improving our capabilities for navigation, weapons delivery, force control, precision surveys, and many other potential applications. It is a space-based system with worldwide coverage which provides accurate three-dimensional position, velocity, and time information. GPS satellites also carry sensors to detect nuclear detonations. The first production satellite was launched on February 14, 1989. This budget request will support the launch of additional operational satellites, the acquisition and integration of user equipment, and the continued development of satellite improvements.

(U) While these programs are indicative of the gains which have been realized in fielding new systems, we are also continuing a number of programs that focus on the future.

(U) For example, the Joint Tactical Information Distribution System (JTIDS) is being developed to provide high capacity, secure, jam resistant, digital information exchange systems for a wide variety of tactical forces. Its capabilities include voice and data communications, position location and navigation, and cooperative identification among system users. While development of the system is consolidated within OSD, the acquisition of JTIDS terminals will be carried out by the Services. The program also provides for the cooperative development of a low volume JTIDS compatible terminal called the Multifunctional Information Distribution System (MIDS) for use in both U.S. and NATO aircraft. Reliability verification tests of the JTIDS Class II terminal have demonstrated a mean time between failure of 316 hours. Additional operational testing using F-15 aircraft and Army ground units will be conducted during February and May 1989. Production of the JTIDS Class II terminal for F-15 aircraft is planned to begin in FY 1989. Integration of JTIDS into other aircraft and the production of terminals for a wide variety of platforms is supported by the FY 1990 and FY 1991 budget request.

(U) Further gains in avoiding fratricide can be realized by increasing our ability to identify possible targets as friend-or-foe. With this aim, the Mark XV combat identification system is being developed in cooperation with our NATO allies to provide positive identification of U.S. and allied aircraft. It will replace the aging Mark XII system. A final agreement with our NATO allies on the system's technical characteristics is expected during FY 1989. A contract for full scale development has been awarded, and development of the system will continue under the budget request.

(U) The Airborne Warning and Control System (AWACS) continues to play a major role in a variety of missions due to its flexibility and capability. However, technological changes in the threat have limited its surveillance capabilities. The budget request will continue the program to improve the detection capabilities of the AWACS radar, and, thereby, restore its capabilities to the level required to detect and counter the evolving threats posed by low radar cross-section fighters, cruise missiles, and jammers. It will also support other improvements such as the integration of the Mark XV system into AWACS aircraft.

C. Defense-Wide C3

(U) Defense-wide communications and information systems support the management of both nuclear and conventional forces. They provide for information processing and display, global and base level communications, and information security.

(U) Our major information systems upgrade efforts are the development and deployment of modernized Worldwide Military Command and Control System (WWMCCS) Automated Data Processing (ADP) capabilities and the improvement of our warning and attack assessment capabilities.

(U) The WWMCCS ADP modernization program will modernize and replace the existing standard WWMCCS ADP system. The primary mission of the WWMCCS ADP system is to support the National Command Authorities, the Joint Chiefs of Staff, and the CINC's in their decision making process. It provides the ADP support necessary for force preparation and planning, implementation of operations plans, and monitoring the execution of those plans. Improvements to the system are being developed and fielded incrementally. The first improvements include a local area network, an automated message handling capability, and modern workstations. Modernization of the WWMCCS ADP sites will occur over several years, and each site's configuration will evolve as mission requirements dictate. Future improvements will provide the integrated applications software needed to improve planning and deployment activities. The FY 1990 and FY 1991 budget request will field local area networks, workstations, and incremental software releases at various sites.

(U) There are several ongoing programs to modernize or replace the ADP systems which support tactical warning and attack assessment. One of the largest of these programs is the replacement of C3 systems within the Cheyenne Mountain Complex (CMC). These efforts include replacing the computer systems that process all communications into and out of the CMC, upgrading the North American Air Defense (NORAD), Command Post, replacing the Command Center Processing and Display System (CCPDS), and improving the Space Defense Operations Center's (SPADOC) warning and surveillance capabilities. The budget request supports these and other efforts which, when completed, will provide C3 systems capable of meeting our tactical warning needs well into the next century. These programs are in various stages of development and fielding, but all will be fully operational by the mid-1990's.

(U) The Defense Communications System (DCS) provides global long-haul telecommunications service to the Department of Defense (DoD). DCS modernization initiatives focus on achieving total integration of the Defense Data Network (DDN), Defense Switched Network (DSN), and other transmission/network related programs. The DDN is our primary means of providing a common, secure, interoperable and survivable long-haul data communications system to all DoD users. Its design and development phases have been completed and the thrust of the current program is connecting additional users to the network. The budget request ensures the continued operation of this vital data communications network and will add and upgrade the message switching nodes. The DSN is an interbase telecommunications system designed to provide end-to-end, common user, and dedicated telephone service for the DoD. The budget request will continue the installation and testing of DSN equipment worldwide.

(U) The budget request for support and base communications is comprised primarily of operations and maintenance funds needed to sustain base level telecommunications for all DoD bases, posts, camps, and stations. It provides and maintains items such as telephone and cabling systems, telephone toll charges, communications personnel salaries, commercial communication services, alarm systems, and telecommunications centers, and associated cable distribution plants. In addition, these resources cover property maintenance at installations which have a primary mission of supporting telecommunications activities. A portion of the request is also for the replacement of antiquated telephone switching and distribution systems at a number of installations.

(U) While much progress has been made in recent years to protect U.S. telecommunications, the majority of government communications are still vulnerable to hostile intercept and exploitation. Accordingly, we are continuing to pursue initiatives to secure our communications and computer systems. The FY 1990 and FY 1991 budget request supports the development and acquisition of the information security (INFOSEC) equipment needed to prevent the compromise of military and intelligence data.

(U) During this decade, our development and deployment of INFOSEC capabilities have been revolutionized. Through new joint government/commercial initiatives, we have successfully increased the availability of communications security (COMSEC) and computer security (COMPUSEC) devices to ensure that information vital to our national security is protected. These initiatives and recent advances in the INFOSEC technology base have drastically decreased the cost of providing and maintaining security. For example, the

STU-III secure telephone program has resulted in the mass production and fielding of a low-cost method of securing our voice communications. Over the next few years, STU-III's will be deployed to all levels of the federal government providing a major improvement in our secure voice posture. Furthermore, advances in microchip technology are allowing us to move from the traditional "black box" deployment of COMSEC to the more practical embedding of COMSEC within the circuit design of our C3I systems, allowing major weight, power, maintenance, and cost savings. As we have become more dependent on computer systems, the need to ensure that these components will be "trusted" and less vulnerable to covert or overt attacks (e.g., viruses, hackers) has increased. We have established the DoD Computer Security Center to intensify our efforts in the development of COMPUSEC products. The result will be that by 1991, we should have in excess of 90 DoD approved COMPUSEC products available, where we had none in 1983. In support of the deployment of security to our C3I systems, our INFOSEC development efforts will provide our forces of the 1990's with more timely support and increased security and manageability of cryptographic key material, required to support our nuclear command and control system and worldwide contingency operations. Finally, our INFOSEC program provides improved protection against electronic eavesdropping and penetration of U.S. facilities by providing the means to detect and counter these attacks.

IV. CONCLUSION

(U) In conclusion, I ask for your support of the FY 1990 and FY 1991 biennial budget request for C3I programs. We have accomplished much over the past few years in eliminating severe deficiencies in our C3 capabilities. Unfortunately, others remain. This budget request would provide the resources needed to continue programs which are aimed at resolving these remaining deficiencies. It is not a request for embarking on "new starts", but is a request that we finish efforts which began several years ago, which have demonstrated success, and, in many cases, which are in their final phases of completion. Seeing them through to completion will require the investment of an adequate level of resources. I ask that you reaffirm, as you have in the past, your commitment to and recognition of C3I's vital role in maintaining a strong national defense.

(U) Mr. Chairman, this concludes my statement. Thank you.

MAJOR C3 RDT&E PROGRAMS

	($ IN MILLIONS)		
	FY 89	FY 90	FY 91
Strategic C3			
Navy Strategic Communications	51.1	31.3	19.3
OTH-B Radar	18.5	20.4	18.1
BMEWS	24.8	19.3	23.0
Spacetrack	12.3	15.7	15.5
Defense Support Program (DSP)	97.0	134.0	61.5
Defense Satellite Comm System (DSCS)	33.7	28.1	15.6
Minimum Essential Emergency Comm System			
(Navy)	1.0	1.3	1.5
(Air Force)	40.4	15.8	2.7
(DCA)	9.7	8.0	7.9
SATCOM Ground Environment	26.5	43.1	35.1
Milstar			
(Air Force - Terminals)	303.0	210.2	104.9
(Navy)	4.3	5.0	4.5
Theater & Tactical C3			
Adv Field Artillery Tactical Data Sys	15.6	37.5	39.3
C3 Interoperability	60.3	50.5	52.3
Identification Friend-or-Foe (IFF)			
(Army)	40.3	25.1	21.3
(Navy)	20.7	26.3	56.5
(Air Force)	85.3	113.4	106.4
Air Defense C2 & Intell - Eng Dev	92.4	71.7	75.7
Joint Tactical Info Distribution System			
(Navy)	114.6	96.6	79.8
(Air Force)	49.3	44.4	43.7
(OSD)	61.1	87.1	87.8
E-2C Squadrons	22.8	38.9	36.9
Tactical Air Control System	13.3	22.3	28.6
Airborne Warning and Control System	116.1	139.6	126.2
Navstar Global Positioning Sys (GPS)			
(Army)	8.8	7.7	8.2
(Navy)	41.8	43.8	42.7
(Air Force)	94.5	68.9	63.6
INEWS/ICNIA			
(Air Force)	37.1	36.4	31.8
(Navy)	2.1	3.3	4.8
Tactical Command System	25.9	47.5	42.2

($ IN MILLIONS)

	FY 89	FY 90	FY 91
Defense-Wide C3			
NCMC-TW/AA Systems	69.9	118.3	182.6
WWMCCS Information System			
(Navy)	5.6	6.0	3.9
(Air Force)	66.7	76.4	73.3

MAJOR C3 PROCUREMENT PROGRAMS

($ IN MILLIONS)

	FY 89	FY 90	FY 91
Strategic C3			
DEW/North Warning System	202.0	195.4	5.2
OTH-B Radars	159.0	209.5	218.5
Minimum Essential Emergency Comm.Net.	3.6	3.3	23.3
SAC Command and Control	2.4	47.8	49.4
Defense Support Program (MYP-92)	430.5	371.6	542.8
Defense Satellite Comm. System (MYP)	53.9	49.1	62.9
DSP Ground Upgrades/Terminals	1.7	89.0	69.4
DSCS Operations Control System	42.2	20.7	20.9
Fleet Satellite Communications	173.6	312.8	201.0
Milstar (Ground Terminals)	73.1	103.4	227.8
Single Channel Objective Terminal	36.3	38.6	71.8
Satellite Terminals	11.8	21.2	42.2
SATCOM Ship Terminals	10.4	69.9	72.2
Theater & Tactical C3			
Army Data Distribution Sys (ADDS)	74.1	48.8	223.3
E2-C Early Warning Aircraft (MYP-91)	335.9	486.2	423.7
FAAD C2	.0	.0	52.8
FAAD Ground Based Sensor (GBS)	.0	48.2	48.5
Navy JTIDS	.0	.0	25.4
MAC Command and Control Support	20.3	27.8	22.4
Mobile Subscriber Equipment	991.1	984.7	345.6
Army SINCGARS Family	236.8	315.7	314.5
Tactical Air Control System	119.0	233.1	264.7
Tactical Air Operations Module	63.9	46.6	40.7
Tactical C-E Equipment	39.9	32.0	49.0
Position Locating Reporting System	29.2	59.8	26.8

	($ IN MILLIONS)		
	FY 89	FY 90	FY 91
Joint Tactical Comm. Program			
(Army)	112.4	22.1	24.9
(Navy)	75.7	48.2	31.5
(Air Force/MYP-91)	151.3	226.4	115.3
Global Positioning System (MYP-92)	74.6	70.3	200.8
Navstar User Equipment			
(Army)	14.7	27.0	32.4
(Navy)	11.2	13.0	9.7
(Air Force)	12.7	11.5	4.2

Defense-Wide C3

Information Systems-Milcon Army Spt	.0	23.3	21.8
Telephone Exchange	27.7	43.6	54.1
Wideband Systems Upgrades	14.2	47.8	10.8
Cheyenne Mountain Complex	22.1	36.9	10.9
Army WWMCCS Information System	18.2	31.9	31.9
Air Force WWMCCS/WIS ADPE	12.1	15.6	34.1

INTEROPERABILITY

Mr. **Murtha.** A few years ago we read and heard about all the problems with communications.

Go over what the problem was and what you have done to rectify that problem since then.

Dr. **Smith.** Well, sir, there was a lack of interoperability. I don't think there is any doubt about that. And interoperability depends on the technical, procedural, and operational standards that are employed.

I think what we found out was that there were some operational and procedural difficulties, and, of course, we cannot rule out the technical difficulties as well.

But what we are doing now is we are trying to standardize things so that we don't have those same problems again, although I have to tell you that that has not, in my opinion, been completely resolved. But we have come a long way.

The Joint Staff is responsible for the operational standards and they are working hard on that. Incidentally, we have a good communication link between OSD and the Joint Staff. I know Admiral Tuttle and we converse all the time and the Joint Staff and ourselves are in lockstep with a lot of the things that are going forward. One of the things that both the Joint Staff and OSD supports was the formation of that Joint Tactical C3 Agency.

That agency really grew out of the TRITAC group up at Fort Monmouth, and that group, now known as JTC3A, has been folded in with the DCA and they are providing a very good, hard-nosed look at all of our interoperability programs in the tactical arena.

What they are doing, first of all, is coming up with an interoperability architecture and in doing that they are talking to the CINCs, for example, and they are trying to put into place an architecture that will satisfy the CINCs' requirements and then those requirements are made part of our defense guidance, which is sent out to the services so that the services know what the architectural requirements are when they come to procure those particular pieces of equipment.

Mr. **Murtha.** In Grenada, as I understand it, the air units couldn't talk to the ground units, and some of the ground units couldn't talk to each other. If we had a similar operation today, would they be able to talk to each other?

Dr. **Smith.** Yes, sir.

Mr. **Murtha.** Secure communications, anti-jamming, jamming resistant communications?

Dr. **Smith.** The anti-jamming is not so good.

JAMMING THREAT

Mr. **Murtha.** Isn't it true that the Russians have a substantial jamming capability and that we would be in bad shape in an operation if the Russians were able to put their jamming assets in place?

Dr. **Smith.** They do have a very good jamming capability and I am worried about the jamming aspects and we are trying to do something about it.

With JTIDS, we are coming on line, HAVE QUICK coming on line, SINCGARS coming on line, these are all capable of operating in a jamming environment.

The point I am trying to make is, without being defensive about it, we haven't yet committed everything and haven't put everything out in the field. That is a worry, sir.

Mr. MURTHA. So at the present time, if we would have another operation without jamming, could individual service units talk to each other?

Dr. SMITH. Yes, sir.

Mr. MURTHA. If there were jamming, say, in the Middle East or where the Rusians had assets, could they reduce our communications performance by 50 percent? Do you have an objective measure of how effective they would be with their jamming?

Dr. SMITH. No, sir; I don't.

Mr. MURTHA. How about our jamming of the Russians, Dr. Quinn?

Dr. QUINN. It depends on the jamming scenario obviously what things the enemy would bring in.

We have the HAVE QUICK system deployed. We have agreement among our forces and the NATO forces to use the HAVE QUICK to allow all the aircraft to intercommunicate with each other in a jamming environment. That has been adopted as a standard. So they will be able to interoperate at UHF frequencies in a voice communication mode.

The JTIDS system is in the AWACS aircraft, so it can communicate from the aircraft to the ground in a jamming environment, and do very well. It has not yet been put in the fighter airplanes. The Air Force is testing it in Florida and the other services are adopting it. It is not deployed yet.

Mr. MURTHA. From a technical standpoint, describe the command structure and its potential vulnerability to jamming in a fighter squadron.

Dr. QUINN. Well, the voice aircraft-to-aircraft communications would be done with the HAVE QUICK system at UHF, so that is protected against jamming. If we try to send data between aircraft, we don't have a system to do that at this time but the JTIDS system will do that. So we don't have a data capability to go from the ground to the aircraft at this time.

From the AWACS aircraft which detects the targets and is transmitted to the ground where it can be handled by a data fusion center. That link is protected. In passing that information back to other aircraft, it would have to be handled by voice because we don't have a data system at the moment.

When it is deployed, the JTIDS will allow targets to be automatically passed to the cockpit of the fighter planes so the pilots will know instantly what the other aircraft have on their displays and what the AWACS sees.

The ground forces don't have AJ on their VHF system, at this time; however, the SINCGARS is coming into being. It is working in Korea and doing very well. But ground communications are vulnerable at the moment and we have to use other schemes, changing frequencies and things of that nature.

Mr. MURTHA. So air to air communication is secure?

Dr. Quinn. Yes.

Mr. Murtha. AWACS to ground communication is secure?

Dr. Quinn. Yes.

Mr. Murtha. Ground to ground communication is the most vulnerable at this point?

Dr. Quinn. Yes, the ground forces. We don't have an AJ system for the Army Forces.

Mr. Murtha. Ground to air?

Dr. Quinn. You could use the HAVE QUICK ground to air in many applications, but that is again voice. It is limited in the amount of data you can send. You can't transfer a whole lot of data.

Mr. Murtha. How secure is it?

Dr. Quinn. It is secure against jamming.

Mr. Murtha. How about sea communication between ships?

Dr. Quinn. The Navy doesn't have the HAVE QUICK system yet. They are building it into their standard radio. They do things a little different than the Air Force. They use a single radio to cover the spectrum of UHF and VHF so they are building the anti-jamming capability into that radio.

The Air Force chose to use the HAVE QUICK system and deployed it in almost all of their aircraft whereas the Navy doesn't yet have it deployed.

The Navy will also use JTIDS and in much wider applications than the Air Force. They intend to use voice, for example, on JTIDS for jamming protection at sea between ships and aircraft. The Air Force doesn't intend to relay on it that much for voice.

Mr. Murtha. Would radio communications between the forward observer and the ship that provides naval gunfire support be secure?

Dr. Quinn. No. I don't think so.

Mr. Murtha. How about the forward observer for an Army artillery unit.

Dr. Quinn. Well, if you are talking about an E-2C, which might be out there, it has a link 4 radio. It is not jam protected, but it does have a data capability.

INTEROPERABILITY

Mr. Murtha. I am trying to get a conception with all the money we have spent, what progress we have made.

Take Grenada as the baseline. How much further along are we in this field?

Dr. Quinn. From a technical viewpoint, the problems in Grenada were in large part a lack of planning.

Mr. Murtha. They didn't bring in the OSD communications community early enough?

Dr. Quinn. That is correct. Not that we need to be in it ourselves, but you need to involve the C3 operational planners at an early stage.

Mr. Murtha. The communicator.

Dr. Quinn. Yes. So there were some omissions. There were some crypto devices that weren't deployed with the radios that had been deployed. If they had, there wouldn't have been a problem. Although they had early problems, it is kind of like any operation of that type, the people in the scene fixed it pretty quickly once they got the crypto boxes in the right places.

What has happened since then and, of course, prior to that period, we had systems in development. For the better part of a decade we have been engineering and developing systems and they are now coming to fruition.

What we are saying now is that we really need to get this stuff out to the field.

We have deployed a number of the tactical devices that came out of the TRI-TAC program. But the JTIDS, the SINCGARS and the HAVE QUICK systems are just now being deployed to the field and we need to get a lot more of that equipment out there.

Whereas the R&D is just about completed, we are in engineering development or limited rate production with these systems, so we are right at the threshold now of getting this warfighting capability into the hands of the field commanders and we need to make sure that it happens.

Mr. MURTHA. So you are saying that for any problems they had in Grenada, you now have the equipment in place to operate in a jamming scenario effectively? You could operate even with the Russians' capability to jam our communications equipment?

Dr. QUINN. Yes. I think a lot of things have been improved, agreements on message standards and a great deal of improvement on operational procedures have been put in place.

Mr. MURTHA. Those have been put in place. However, you reduced the budget for the agency involved with the implementation of interoperability standards.

Dr. SMITH. In the JTC3A is where you are seeing a reduction, sir. There was a reduction of $10 million for that. That was reduced both in fiscal year 1990 and 1991.

Mr. MURTHA. The agency is tasked for interoperability?

Dr. SMITH. Yes.

Mr. MURTHA. They have been cut back. Have you got the equipment? Although you have funded the R&D effort, this equipment is not on line. I still don't understand where we are.

Give me a comparison that we can understand.

Dr. SMITH. Sir, I think—let me just talk about that $10 million cut with the interoperability agency. That was because they were not spending their money at a rate that required that other $10 million, so it was a very good management decision to take the money away from them and use it somewhere else.

Therefore, what I am really telling you is that they have had their teething problems as they became an agency and they are over those now, and we also, incidentally, have a guy by the name of Brigadier General Mallion who is now running that agency who has had comptroller experience in the Army and we don't expect to see underfunding again. We expect him to do his job. We have done and are doing a lot of the R&D that will make sure that everything is interoperable.

The JTC3A does the testing to make sure before equipment goes into the field it will really talk to each other.

Dr. Quinn is saying now we need to make sure that we don't lose procurement dollars to make sure the guy in the foxhole gets his SINCGARS radio.

Mr. Murtha. You have equipment being developed, that if completed and sent to the field, would be able to operate in a jamming environment ground to air, ground to ground, ground to sea, and so forth.

Dr. Smith. Yes, sir. Once this equipment that we have now, we have some of it deployed and more coming on line and that will be able to operate in a jamming environment.

Mr. Murtha. So if the budget is cut substantially, what is it going to do to you?

Dr. Smith. Sir, I want to protect those systems from cuts that will prevent the people in the field getting the interoperable equipment to talk to one another.

I want to make sure of that and I really do want to protect it. I think that is one of my biggest jobs. We must have our warfighters being able to communicate.

Mr. Murtha. You may be behind the power curve because the way the budget looks to us, we are going to have a hard time funding the overall budget and I would guess that your area would be vulnerable to a reduction, but obviously we will do the best we can with the amount of money we have.

Mr. McDade?

COMMUNICATIONS ARCHITECTURE

Mr. McDade. Thank you, Mr. Chairman.

Dr. Smith, I just wanted to get a feel for these keystone programs that you talk about.

We have been appropriating a lot of money over the years to try to remedy this problem of communications and I would like you to briefly describe for me what is in place, what is about to be in place, and the function of each and how they are related tactically or strategically.

Run through that for me as to what you are trying to do, where the dollars have gone, and what is this threshold we are about to cross?

STRATEGIC WARNING AND COMMUNICATIONS

Dr. Smith. Let me talk about the strategic first then. On the strategic side, we have a system of sensors in place. ———. Those satellites are being upgraded. They are being improved in a number of ways that I could talk about at length.

Mr. McDade. Give me one example.

Dr. Smith. ———.

We want to hand over then to places like Fylingdale in England and we are putting up a new radar. That was an old radar built in the sixties and we are putting a phased array radar there. Similarly, in Thule and similarly in Alaska, those are our early warning radars that we are upgrading——

Mr. McDade. The phased array provides you what kind of additional capability?

Dr. **Smith**. Better resolution. As a matter of fact, it gets range, resolution, and all together a much more effective radar.

Let's see—we are also now talking about the north warning system, the old DEW LINE distant early warning. We have got a total there of 14 long-range radars that are in operation, and we are also having three short-range radars that are of a prototype nature.

These short-range radars are largely going to be unattended radars so we have actually improved our distant early warning radar system with not only better radars, but less costly to maintain, and to operate because of there being no people there.

With the sea-launched threat, again talking strategically, we are putting into place the over-the-horizon backscatter radars.

On the East Coast, we have three sectors, and these sectors can look at airplanes coming over, and, in fact, they have ranges from 500 to 1,800 nautical miles. There is a reflection off the ionosphere. We have three of those in place and they were tested last fall.

Similarly, we are going to have three on the West Coast and they are under construction. The intention is to have two in Alaska, the first sector, we want to go under contract this year. The second sector in Alaska will be an option for next year.

We want to put in place a couple of sectors in the center of the country, which, in fact, will give us a complete 360 protection around this country.

We have added a couple of PAVE PAWS radars, which again can detect sea-launched ballistic missiles. This is still on the strategic side now. We have improved our capabilities to talk to our submarines strategically.

We have the TACAMO, the upgrades to that, the first aircraft for the upgraded TACAMO has been delivered. It is having flight trials right now.

We also have ELF communications links. We have the ground link in place and we are putting terminals into various of our submarine platforms.

So all together I think we have done a great deal in improving our connectivity among the various sensors and we have also hardened our ground, our mobile and our airborne sensors against EMP, electromagnetic pulse, so I believe that we have made them more survivable and all together we are now far less vulnerable.

TACTICAL COMMUNICATION

Tactically, I think that I have got to give a lot of credit to the Army. The way I do this is that the Army has its arms around the problem of what it wants to happen in tactical command and control. They have what I call the Pentagon chart. They have maneuver control system—a maneuver control system they are putting into place which allows the field commander to control his forces and the maneuver of those forces in the battle.

They have the AFATDS coming up, the advanced field artillery tactical data system. They have the forward area air defense C2I system, which is coming on line. Then they have what I would call the support structure for this. One is the service support system, which is not very far along, I should tell you, and this system is computer-based. All these are computer-based because I am talking command and control now, sir.

The other part of the base making the fifth node is the all-source analysis system, ASAS, which takes intelligence information. All those nodes are computer processing nodes. Sensors gather the data, then it is processed and made available among the nodes. And what we are doing is purchasing some common hardware and software to make sure that all those nodes interoperate or can transfer information one to the other. That common hardware and software is rather an innovation as a matter of fact.

We are buying non-developmental items. We went out to industry and said, "What can you produce that we don't have to go out with special R&D to fund? What can you do?"

They have come back and we have had reviews of this equipment and now we are saying to the program managers of each of these nodes, "That is the type of equipment and software in ADA that you have to interoperate with."

If you take those five nodes and say, "They are all married together. How do I communicate one to the other?" I say you can communicate in a number of ways.

You can use SINCGARS, which they all communicate with. You can use the Mobile Subscriber Equipment that is nothing more than the cellular telephone really with switching networks and so on, very good stuff again, it is non-developmental.

We are coming along with our Advanced Data Distribution System—ADDS—which is inclusive of the Enhanced Position Locating and Reporting System, and we will also have JTIDS, as well to put into this.

So all together we are going to be able to communicate with SINCGARS, MSE, JTIDS, ADDS, and that will all be secure and it will also be anti-jammable and in the meantime——

Mr. McDADE. Including MSE?

Dr. SMITH. MSE can be jammed. SINCGARS cannot. JTIDS cannot.

Mr. McDADE. The only thing you have in the field that is under demonstration is MSE?

Dr. SMITH. MSE we are fielding, sir. SINCGARS we are fielding in Korea and Panama.

Mr. McDADE. Is that on demonstration?

Dr. SMITH. Demonstrations were done last year, sir. We are in production now.

Mr. McDADE. Does that have the encryption system in it?

Dr. SMITH. Yes, I think it does.

It is AJ, and it has encryption in it, for the AJ.

Mr. McDADE. It is anti-jam, but it does not have encryption?

Dr. QUINN. The anti-jam system is designed to allow it to frequency hop in a pattern someone can't recognize. It has encryption.

Mr. McDADE. Is it AJ or encrypted——

Dr. QUINN. It has both signal security, is by virtue of the encryption that is on the AJ. NSA provides encryption devices for the message system also if you want it, but it is basically a voice system.

Mr. McDADE. When will SINCGARS be fully fielded? Do you know?

Dr. SMITH. Fully fielded, I think, after the year 2000.

Mr. MCDADE. The Army probably knows the answer. I want to let you finish.

Dr. SMITH. I can find an answer to that for you, sir.

[The information follows:]

The Army began fielding the SINCGARS in 1988. The total Army quantity is expected to be 350,000. The US Marine Corps will procure approximately 30,000. Total fielding will be completed in fiscal year 2004.

Mr. MCDADE. I would like to have you continue your description.

Dr. SMITH. Let's see. I have done the strategic and I have pretty much done the theater and tactical for the Army.

What else would you like to hear?

IFF SYSTEMS

Mr. MCDADE. Let me ask you a question. For ten years or so, I have been on the committee and have been talking about IFF systems. My recollection is that we have started that program. Where is that program?

Dr. SMITH. You are right. That is a Mark XV, sir, and that will replace the Mark XII, which is an outdated system.

The Mark XV is the U.S. system and we have an agreement with the Europeans, who are working on research and development for systems similar to the Mark XV system. It is not in the field, sir,

Mr. MCDADE. When is it scheduled to be?

Dr. QUINN. It is in FSD. We just entered a contract for full-scale development of it in the United States. We have an agreement with five other countries that are going to use the same format and they will soon enter full-scale development.

We have been debating with the Europeans on the wave form trying to get an agreement to have the same IFF system. It took a long time because we disagreed with the frequency band they wanted to use.

We have finally ironed that out.

Mr. MCDADE. Are the major countries subscribing now?

Mr. QUINN. We had the four powers——

Mr. MCDADE. What are the four powers?

Mr. QUINN. The United Kingdom, the Germans, the French, and ourselves.

It has now become a NATO standard agreement among the NATO nations for the waveform, so it will be used throughout NATO as the standard IFF system and we would expect in a couple of years to see that system in place.

Mr. MCDADE. Thank you.

Dr. Smith, do you have anything else you would like to add?

Dr. SMITH. Not at this time, sir.

Mr. MCDADE. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Dicks?

STRATEGIC MISSILE SURVEILLANCE

Mr. DICKS. Welcome.

I would like to talk a little bit about where we stand on ———. What I want to get to and maybe you can help me a little bit, I know you have had experience in SDI, there is a lot of discussion about ——— improvements. Have you been briefed on that at all?

Dr. SMITH. Yes.

Mr. DICKS. Tell us a little bit about that.

Dr. SMITH. I will be glad to.

There is a lot of dialogue going on about what should be the follow on ———.

Mr. DICKS. This is our early warning attack assessment?

Dr. SMITH. Yes, sir.

Mr. DICKS. Infrared?

Dr. SMITH. Yes, sir.

Mr. DICKS. Tells you whether missiles are coming out of the silos, right?

Dr. SMITH. That is right, sir.

We have had them up for a number of years. I can't remember the number of years, but I do know that we have launched ———.

Just to get my thoughts in order as I answer your question, we have a multi-year procurement contract with TRW for 18 through 22, and the Air Force has the potential to have 23 through 25 on another multi-year contract.

Now, No. 26, would be a—could be a block change where we would do something different to what we are doing today.

Some of the arguments that have been going back and forth——

Mr. DICKS. What is 23 to 26 again?

Dr. SMITH. That would be another option.

Mr. DICKS. Go ahead.

Dr. SMITH. SDI would like very much to do some battle management computations on orbit.

The extent to which it would want to do that will depend upon the final architecture of any defense system that we put into place and, quite frankly, that can change.

Mr. DICKS. We know that, that it is very fluid, we are not certain yet where the Bush Administration is going to come down in terms of START and SDI and early deployment or any of this.

We are not certain yet how this is going to go. There are some serious people out there who are saying that BSTS, first of all, is not treaty compliant.

Would you agree that it is not treaty complaint, if deployed?

Dr. SMITH. If it had all the processing on board that I think would be needed for a full defense, I don't think if would be treaty compliant.

Mr. DICKS. In other words, you have a mobile space-based battle management radar which clearly violates the terms of the agreement?

Dr. SMITH. I agree.

Mr. DICKS. General Randolph has stated that he sees this as clearly not treaty compliant.

What is the cost of BSTS? What would it cost us to go in that direction, this other satellite which has this battle management capability that violates the ABM Treaty? How much is that going to cost us?

Dr. SMITH. The program is in development now and the final platform the final satellite would cost something on the order of three quarters of a billion dollars.

Mr. Dicks. Per satellite?

Dr. Smith. It could.

Mr. Dicks. I am told we are talking somewhere in the $8 to $15 billion range?

Dr. Smith. They vary all over the place with how much processing you put on, but it will be a considerable amount, sir.

Mr. Dicks. So, in other words, this is an enormous endeavor?

Dr. Smith. It is. I agree with you.

Mr. Dicks. What additional capabilities would a ——— design provide and at what cost?

Dr. Smith. ———. I don't know what the per unit cost ——— really is. We could probably find that out for you.

[Clerk's note.—Classified insert was removed.]

Mr. Dicks. According to an article in Aviation Week, ——— would have greater survivability, first of all.

Is that correct?

Dr. Smith. I think that would be correct, sir. Yes.

Mr. Dicks. Why don't you give us a little description of why that would be in the record.

[Clerk's note.—Classified insert was removed.]

Mr. Dicks. Is the battle management basically the major thing we would get from BSTS ———?

Dr. Smith. That is one of the things, sir. Another one would be the ability to deal with a very, very much larger number of launchers. ———.

What that means to me as a satellite designer and builder is that they will have to have essentially a new satellite. I have no objection to this at all, but when TRW calls it an evolved satellite, I think it is a block change. It is a——

Mr. Dicks. A major upgrade?

Dr. Smith. Yes.

Where I am coming from, from a philosophical point of view, is if we have to have a major upgrade to this and, incidentally, it has to have a ——— platform which gives you more complexity.

What we would like is something that if you are going to build a new spacecraft, can be modularized and grow from the new spacecraft. It is not immediately obvious to me that the evolved DSP can have room for further growth. Therefore, if you have to have a major upgrade, I would like to start with a new structure that can evolve into something more if you want it to.

So what you could possibly do is to "build a BSTS" or call it whatever you want to call it, but build the next satellite so that it has the growth potential so that if you want eventually to put a strategic defense into place, you could come up with something that is modular to that new spacecraft.

ABM TREATY

Mr. Dicks. Could you build a BSTS that was treaty compliant?

Dr. Smith. The ——— would be treaty compliant and if you called it a boost surveillance tracking system, it would be treaty compliant. If you wanted it to do everything that SDI wants it to do, it will not be treaty compliant——

Mr. DICKS. So we have to decide whether, in fact, we are going to live within the terms of the ABM agreement or not, because would it make any sense to build BSTS if you couldn't deploy it because it violated the ABM agreement?

Is that correct?

Dr. SMITH. It would make some sense to build BSTS ——— and keep it within treaty compliance.

Mr. DICKS. That is not what we are doing now.

Dr. SMITH. We are not actually building a treaty busting BSTS to the best of my knowledge.

Mr. DICKS. General Randolph says that BSTS, because of this battle management, is violative of the treaty so you couldn't deploy it.

It is a question of how much further you can go even in testing it frankly, whether you get above the component level that you are going to start having real problems.

So what we are saying is we are not sure we are going to bust out of the ABM agreement and if you are talking about something that is going to cost $8 to $15 billion, maybe we better start rethinking ———. I have got to think that anything new is going to be more expensive. I haven't seen anything new that isn't more expensive. You are not going to be able to do all these things and have it be treaty compliant.

Dr. SMITH. That, sir, I agree with.

What is happening as far as I can remember now in SDI is that so far they haven't got anything on orbit. They have two companies, Grumman and Lockheed, and one of them is doing a staring array. The other is doing a scanning array, so it is a technical competition as well as a cost competition.

I am saying that that is very, very good work that we are doing and ——— it could use some of that technology.

The technology is certainly not being wasted.

Mr. DICKS. That evolved technology could be used ———?

Dr. SMITH. Yes, sir.

Mr. DICKS. So we are not sqandering money, but when can we make a decision of whether we are going to start down the road of building something that is going to violate the ABM agreement?

Dr. SMITH. I think that decision would more appropriately be made after these two competing companies are down selected and I don't know the date of that.

Mr. DICKS. How much money are we spending on this, $600 million or something like that?

Dr. SMITH. I don't have those figures.

Mr. DICKS. Please put them in the record.

Dr. SMITH. I am not familiar with the SDI budget anymore, sir. I will be glad to give you those answers.

[The information follows:]

BSTS funding began in FY 1984 with four contractors competing on the effort. These four were reduced to three and subsequently to two. The funding profile follows:

RDT&E:	
Fiscal year:	*Millions*
1987 and prior	220
1988	174

1989	235
1990	330
1991	402

Mr. DICKS. Proposed boost tracking, isn't SSTS an option?

Mr. SMITH. SSTS, space survelliance and tracking system, that would be a lower earth orbiting platform and the idea originally was to hand off from the boost surveillance and tracking system to the SSTS. The SSTS would also have to have some ability to resolve objects and to track them and to process. That is true.

Mr. DICKS. So it would be violative, too.

Dr. SMITH. There is a possibility, sir. Yes.

Mr. DICKS. If we went with an accidental launch protection system, which one of these systems would we go with in terms of the early warning?

Dr. SMITH. Well, I think we could do a lot with what I would call the middle-of-the road, if you like ——— or first stage of BSTS. I would like to equate those together from a matter of capability.

I think we could be something good if we had something like that in space and thereafter we could make use of possibly a ground-based system which may require some pop-up sensor to collect the information from the BSTS.

TACAMO REPLACEMENT

Mr. DICKS. Let me switch gears. What about the E-6A program? Where are we on that; the TACAMO replacement?

Dr. SMITH. That is the TACAMO replacement—what we are doing there is that first aircraft has been delivered and it is in flight trials now. We hope to have IOC for that early next year.

Mr. DICKS. Have we worked out the basing arrangement? That was a little complicated.

Dr. SMITH. That was at Tinker air force Base. Yes, that has been worked out, sir.

Mr. DICKS. Thank you, Dr. Smith. Thank you, Mr. Chairman.

Dr. QUINN. We will buy the whole system out in the next two years.

Mr. MURTHA. Mr. Miller?

SINCGARS RADIO

Mr. MILLER. Thank you, Mr. Chairman.

Dr. Smith, you spoke of a secure single channel very high frequency radio and the fact that we would be able to stop the jamming in so many different units. SINCGARS as I understand, would be secure and would stop the jamming?

Dr. SMITH. Yes, sir.

Mr. MILLER. But what about the possibility of the little things in life that don't cost a whole lot—if, for instance the enemy determined the frequency that the SINCGARS is operating on. Could they not disrupt our commanders with false instructions, misleading instructions, knowing that our units are widely dispersed? Could they not cause confusion amongst our troops?

Dr. SMITH. I think the whole object of the anti-jamming technology is that we hop from one frequency to another at enormous rates so it is a frequency hopping.

So it is not transmitting on just a single frequency.

Dr. QUINN. The point is that we take the entire band that you could operate in with a normal radio, and in the old days you would operate at one frequency in the low, mid, or near the top of the band.

With SINCGARS, every pulse is on a new frequency. It is determined by a secure crypto device so that it is unpredictable. One frequency can occur near the lower end of the band and the next one near the high end. Someone trying to jam you is faced with not knowing where you are in the band and must attempt to follow frequency hopping.

He can put energy over the entire band and try to jam that way, but that takes a tremendous amount of energy to fill the band, plus the fact he has eliminated his own communication system as well.

That is a very impractical way to jam, so SINCGARS is not vulnerable to that kind of a process.

Frequency hopping is a desirable feature in that it also enables you to defeat other kinds of interference that is in that band.

The processor on the radios knows where the next frequency is going to occur and waits for it and you can add up several frequencies to integrate the energy out of the band. You can tell where the signal is and take the signal out of the jamming, but an adversary can't.

Mr. MILLER. Every pulse that goes out is on a different frequency?

Dr. QUINN. That is correct.

Mr. MILLER. So all of the units need to be so timed that they will all accept the frequency at the time in the change of frequency from one to the other?

Dr. QUINN. That is correct, and that is what makes the system a bit complicated.

You can set up networks with a certain crypto series associated with them and have different networks on different frequency plans. It is true that the radio operating on one network all have the same frequency plan, but that is a rather straight-forward crypto procedure today. That is not complicated and the radios are working in Korea, the reliability of them is phenomenal, they are doing extremely well and we are hoping we can get them for the rest of the troops that need them as quickly as possible.

ELECTRONIC WARFARE

Mr. MILLER. In your statement Dr. Smith, you had mentioned electronic combat. Could you give us a little more information about electronic combat?

Dr. SMITH. I would be glad to, sir.

Under electronic combat, we get all sorts of equipment like radar warning receivers which would tell a war-fighting platform that his platform is being painted by radar. In other words, it would warn him that he was in the sights as it were of a hostile radar. So radar warning receivers are high on the electronic combat agenda. There are other systems that are also used to jam the enemy radar. They are jammers on board that we send out blasts of high power to jam those receivers. That has the downside, of course, because that tends to give away our position, so all these things have to be weighed when you go into battle with the tactics of what happens.

Some of these electronic combat systems are integral with the platform and some are on pods which hang on the wings of the aircraft. Some of the electronic combat systems involved decoys that you can send out. You can send out a flare, for instance, that will attract heat-seeking missiles from an opposing adversary. You can send out chaff, which puts snow on the receivers of your enemy.

So those are some of the things that would be included in the electronic combat.

Mr. MILLER. We are talking about C3 having about seven percent of the DOD budget.

It seems with a change in technology today that we no more get into one field and make it more efficient, come up with something new, make it better, and we have to change and buy a new system.

I recall when the B-1 bomber, as a matter of fact, went over to France to the air show and they came back and landed here in Washington. Several of us went out to take a look and we were told at the time that the avionics had to be completely changed. They were already out of date, so to speak, the new technology that was developed for avionics and the electronics and the instrumentation was out of date. Fortunately it was changed before they were really into production, because those were prototypes.

Do you find that the bulk of that $21 billion for C3 needs to be spent just upgrading, getting rid of what was good last week, but which is obsolete because of the changes in technology?

Dr. SMITH. There is a great deal of that involved in it, sir. I would have to agree with you.

The point is that we are trying to keep up with the threat as much as anything. We know that the Soviets are developing their technologies, their capabilities, for example, to maneuver against us, to jam us, to decoy us, and we have to make sure that we stay ahead of the threat.

It is like your computer system, sir. You have to admit that what we are doing on a chip today, we took a roomful of computers 30 years ago to do the same thing.

I think that that is part of the problem that we are facing. The rest of the world is not standing still, so we can't afford to stand still. We have to stay ahead of the threat.

Your comment is very perceptive. We have to keep on renewing our capabilities as we go.

Mr. MILLER. I am aware that we do need to do this and that is the purpose of the question because the technology is changing so fast.

Dr. SMITH. Yes, sir.

Mr. MILLER. What part of that $21.3 billion would be used to improve or upgrade our technology?

Dr. SMITH. Half of our budget is for investment purposes, which is R&D and procurement, and the other half is for the personnel to staff our equipment and to operate and maintain it.

So I would say about half of it, sir, would be for the replacement and upgrade——

Mr. MILLER. Upgrading?

Dr. SMITH. Yes, sir.

Mr. MILLER. Very good. Thank you, Dr. Smith. Thank you, Mr. Chairman.

DOD DRUG INTERDICTION EFFORT

Mr. MURTHA. The drug interdiction area, what is your responsibility within the Defense Department's recently assigned drug interdiction mission?

Dr. SMITH. Sir, I am very involved with the C3I part of that.

As a matter of fact, what we are doing in C3I is we are assessing the capabilities in the communications and in the sensing areas of all of the government agencies involved in fighting drugs, and we are looking at the sensors, the radars, the equipment, the processing, the computers of people like the Customs, the Coast Guard, Defense, DEA, and other agencies involved in—police departments even.

What we are doing is we are saying how can we make sure that those existing sensors and processors and communications gear can, in fact, talk together, how can they be interconnected so that we can have a net so that we all work together.

We have been out surveying those assets, and we are producing a document that will be ready in draft form by the first of May that will say what has to be done to interconnect all those assets, and how much money will it cost to purchase other equipment that may be needed for that interconnectivity.

We hope to be able to come out with a report in initial draft on May 1st and finalize it about a month later. And then we hope to support the procurement of those assets as necessary.

Mr. MURTHA. Where does this money come from?

Dr. SMITH. Well, at the moment, a lot of it is coming from the $300 million that is set aside.

Mr. MURTHA. That is set aside and you are controlling the communications portion of the $300 million?

Dr. SMITH. We are supplying people who are doing the studies, sir, in support of General Olmstead, who is in charge of the program.

We have an intelligence person that—we have actually given up an intelligence person for him to use full time.

We have our communications people working full time on the work that I have just mentioned. So we are supporting in a very constructive way.

PERSONNEL SECURITY

Mr. MURTHA. What about security in your agency as far as protecting against an occurrence like the Walker spy case? Do you use lie detectors and so forth in your agency throughout the Defense Department?

Dr. SMITH. Not as a—sir, I don't know to what extent lie detectors are used, to be quite frank with you.

Mr. MURTHA. I am not advocating them. I am just asking what you do.

Dr. SMITH. We don't do that as a normal course of events.

Mr. MURTHA. What security precautions do you take with all this very sensitive information you have?

Dr. SMITH. Every one of us is cleared and we have to have extensive——

Mr. MURTHA. Mr. Walker was cleared, too.

Dr. SMITH. I understand, sir.

What I am really saying, I suppose, is that I can't answer your question very well. Apart from the fact of having clearances run on each of us and for each level of clearance we have to another clearance audit. Apart from that, I believe I am right in saying that some of the agencies like CIA do use the polygraph.

I just can't add any more to that.

Dr. QUINN. That is correct. The CIA does use polygraphs and NSA uses them in any areas where people work on the actual equipment that is involved in guaranteeing security, such as the crypto devices. All the people involved in that endeavor are required to take lie detector tests.

There is a new policy across the whole Federal Government, all the agencies have agreed to this security policy where that kind of policy will be used for all people that are involved in that kind of activity.

Mr. MURTHA. Have you had any breaches of security in the last year?

Dr. SMITH. Not in C3I, no.

STU-III SYSTEM

Mr. MURTHA. How about the STU-III? You are going to buy 1.2 million of them or something close to that. Are you going along with the buy there?

Dr. SMITH. We are going along with the buy, but the 1.2 million is subject to review, to be quite frank with you.

Mr. MURTHA. What would you say was the realistic figure?

Dr. SMITH. I don't have one. As a matter of fact, I think the 1.2 million could be the realistic figure.

Mr. MURTHA. Give us for the record what you are going to buy this year.

[The information follows:]

Approximately 30,000 units will be procured in fiscal year 1989.

Mr. MURTHA. Mr. McDade?

Mr. McDADE. What is the current unit price of the STU-III?

Dr. SMITH. There are three contractors, sir, who can provide the STU-IIIs and they vary in price from $2,100 to $2,800, that spread.

Mr. McDADE. Is that based on the large procurement that you were talking about?

Dr. SMITH. That would be based on a fairly large procurement, sir, and what worries me if we don't go ahead with the 1.2 million, whatever it is, there may be the potential for increasing. But I want to keep competition alive so that I am hoping——

Mr. McDADE. Put in the record the cost per unit at the low figure and 1.2 million, which you think could be the realistic figure.

Dr. SMITH. That may be the figure that will be required. These are excellent phones and should be put at all the installations. It will be an affordability issue.

[The information follows:]

The current prices of the STU-III LCT are as follows: Motorola, $2099; RCA, $2200; AT&T $2899. The figures are based on a contract negotiated in FY 1988 by NSA with each of the vendors.

It is not possible to accurately determine the future per unit price of STU-III LCT procurements because the revalidation of the requirements, and therefore, the number of units to be procured, is still in progress. It is reasonable to assume that there would be some pressure for slight increased per unit cost should the number of units procured be substantially reduced.

Mr. McDade. No difference in threat perception?

Dr. Smith. We are missing——

Mr. Quinn. A 1.2 million is the number of telephones that is to be bought.

Mr. McDade. There is no lessening of the threat about intercepting phone calls?

Dr. Smith. No, sir.

Mr. McDade. Your original assessment of the number was 1.2 million. That hasn't changed, but there may be a budget crunch?

Dr. Smith. Yes, sir.

OVER-THE-HORIZON RADAR

Mr. McDade. We have both the Navy and the Air Force buying over-the-horizon radars, which are different systems as we understand it. Is that accurate?

Mr. Quinn. They use similar technologies. The Air Force system is a fixed installation, the one we are putting around the perimeter of the United States.

The Navy system is called a transportable system. It will be trailerized so that the transmitters and the receivers can be moved from one location to another, not literally over the weekend, but you can dismantle it and move it and it uses a little different processing technology.

So they are two different systems with two different purposes in mind.

Mr. McDade. There is no money in the budget to look at integrating two different systems?

Should we be trying to make them an integrated and not separate system? There is no money in here to integrate the two systems, should there be?

Mr. Quinn. I am not sure you can integrate them. The Navy system will be deployed overseas. It is to be put in overseas locations to do air defense.

The ones in the United States will be part of the strategic air defense system. It is not as though they will both be feeding information into the same system.

As far as integrating the technology——

Mr. McDade. We are talking about ground sites and integrating the software so both systems could send information, the Air Force to the Navy, through the systems.

As we understand it, that is not being addressed. We understand there is no money in the budget for that.

Mr. Quinn. That could be. That is news to me.

Mr. McDade. Look at it, please, and come back and notify the staff whether or not there is money in the budget for it, and if so, how much and if it is something that needs to be addressed, to make the ground stations have the capability to communicate.

[The information follows:]

There are USAF funds in the 1990-91 President's Budget to develop and provide connectivity between Navy ROTH-R sites, Navy C2 Centers, the Air Force's Regional Operations Control Center (ROCC), and OTH-B Operations Centers. The Joint Staff is in the process of validating a Required Operational Capability (ROC) to determine if it is worthwhile to connect Navy ROTH-R sites and Air Force OTH-B sites. The advantages to connecting these sites would be to provide earlier warning of possible threats to CONUS by the forward deployed ROTH-R sites, and expanded wide area surveillance for fleet defense by the OTH-B. The pros and cons to this discussion are part of the Joint Staff ROC.

These funds are contained in the Atmospheric Tactical Warning and Connectivity program (ATW&C).

ATW&C:

Fiscal year:	*millions*
1990	13.3
1991	7.1

Mr. McDade. Apparently both require long-range communications and the question on this side of the table is the communications gear that is now proposed, is it adequate to provide full range of use?

Dr. Quinn. They are separate issues, of course, but there is communication equipment to take the threat information and give it to the fighter airplane where the OTH could be tracking a target and if you wanted to launch a fighter aircraft, you would use the standard communication systems then to do that.

It is not unique to the OTH radar.

Mr. McDade. Do you see any problem with communicating out there?

Dr. Quinn. I don't at the moment, but we will look into that.

[The information follows:]

The Air Force has no plans to use OTH-B to vector fighters. OTH-B can be used to cue and position AWACS, which will then vector fighters as required. When an unknown aircraft penetrates the Air Defense Identification Zone and is subsequently determined to be threatening to CONUS. A fighter is vectored to intercept it. Line-of-sight communications from the Regional Operational Control Center (ROCC) to the interceptor are remoted from a coastal radar site.

Mr. McDade. Your four-sector Central Radar System for sea-launched cruise missiles that is being justified, apparently is assuming a capability of the Soviets based on a standard missile and not an advanced cruise missile.

Is that accurate? Are they looked at in terms of capability against a standard cruise missile for an advanced cruise missile?

Dr. Smith. They are being looked at, the OTH Backscatter is being looked at to particularly identify bombers.

Mr. McDade. Not cruise missiles?

Dr. Smith. They do have some capability against cruise missiles at the moment——

Mr. McDade. We are talking about the North Central.

Dr. Smith. The Central will be upgraded, as a matter of fact, and will have some capability we believe against cruise missiles.

The Central section at the moment has budgeted two sectors, not the four, and what we are hoping to do is to enlarge the array so that we will get more resolution, make it electronically vertically steerable so that we shall be able to pick out lower cross-section targets.

What is happening is on the East sector, we can detect bombers and it has some capability against lower cross-section missiles.

On the West Coast, already we are putting in improvements.

They are longer radars on the West Coast, and we hope to go through with another improvement for the Central section, which we will start in a couple of years time which will include as I say, not only the longer segments, but vertically steerable as well. That will be a software change.

That will, we believe, provide some capability against cruise missiles.

Mr. McDADE. Including the advanced cruise?

Dr. SMITH. We haven't analyzed that.

Mr. McDADE. I realize that is a problem that is over-the-horizon, but one that is probably coming our way and the question is whether or not in your judgment there is a possibility to include in this upgrade any kind of ability against an ACM or whether or not we have to wait.

Is there something we can attempt to foresee or are we really incapable at this point—should be be planning towards this? Is there something we ought to do?

Dr. SMITH. Yes.

Dr. QUINN. We have tested against cruise missiles. As long as you are talking about working in the daytime, it does not at night because radars are frequency dependent on what is happening in the ionosphere.

We are increasing the antenna size to try to improve that problem, putting better processors in to get smaller cross sections.

We will, as we build the new ones, incorporate all features and retrofit the East Coast system, but those are things that are in the R&D program that we have and we would very much like to continue that kind of a program and have a demonstration facility——

Mr. McDADE. You are keenly aware of the ACM problem?

Dr. QUINN. Yes, sir.

Mr. McDADE. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Miller?

STRATEGIC DEFENSE INITIATIVE

Mr. MILLER. Thank you, Mr. Chairman.

Gentleman, you had mentioned that we could see or hear or find out when the Soviets launch their ICBMs. You mentioned that perhaps we could pick them up or at least we needed to do additional research in order to pick them up in the second stage.

We are in a position where we need to know if that if they launch, we can retaliate. Maybe you could guide us a little as to whether the Strategic Defense Initiative should continue. Give us a little of your thinking on SDI.

Dr. SMITH. First of all, sir, I believe that a strategic defense that has a good capability and, therefore, a good deterrent effect against a possible launch by the Soviet Union of a mass attack is feasible.

I do believe that a good capability is feasible. If we decided to go ahead and put something into place, a limited protection system, we could do that.

The technology is available to do it. I believe that it does have an effect on deterrence.

I do believe it has an effect in getting the attention of our Soviet adversaries, and bringing them to the table.

I do believe that the research that is going on in the Strategic Defense Initiative plays very largely into our future needs in other C3 areas.

All sorts of technologies go into miniaturizing sensors, looking at very high-speed integrated circuits that will be needed, looking at different sensor systems in different color bands, ultraviolet as well as infrared as well as visual all across the spectrum—I am firmly convinced, sir, that the information and the research that is being found out and carried out in SDI will benefit all of our systems.

So, therefore, it is very, very good from a research point of view, very good from a C3 point of view and I think very good from a national point of view if policymakers decide to go ahead with it.

Mr. MILLER. That is good information because there is a lot of opposition to SDI.

There are people that maybe are not that familiar with it, but by the same token, they are opposing it, saying that we should spend the money in other areas.

For people like yourself that have the background it appears that you have a very positive concern about the SDI, as far as whether it should go ahead or whether we should hold back in some areas.

Is it possible to get everything in position and send a signal to fire a missile of some type to intercept the ICBM? That is kind of the bottom line, do you think that is possible?

Dr. SMITH. Yes, sir. I absolutely do. There is no doubt in my mind that it is possible. It is possible to detect and to pass on that information to ground processing equipment that can in turn control your ground fire of your interceptor missiles. That is entirely possible.

Mr. MILLER. I am glad to hear that from you on the signal side.

When it comes to firing that particular static unit, that would be located in the atmosphere, it takes a lot of energy, more energy than what we have found that we can put up into space.

As I recall, when SDI was first discussed, it would take as much electrical energy as could be produced by a normal utility company.

That seemed to be an obstacle. What leads you to believe that we can furnish that kind of power to some type of missile that would be able to intercept an ICBM?

Dr. SMITH. Well, sir, there are two types of interceptors. One is an interceptor that is based upon directed energy, which are like the lasers or like the neutral particle beams, and they require some energy source to make them operational.

Now, with a chemical energy laser, it is a mixing of chemicals, and we can surely launch a platform that has those chemicals ready to mix and produce the energy.

We do have a neutral particle beam concept in mind that could be launched in, say, the shuttle bay and only require maybe one or two lifts of the shuttle to get a full neutral particle beam operational in space.

But those are the more long-term types of interceptors.

Let's instead talk about the kinetic interceptors that are nothing more than rockets based upon platforms and their rocket engines are using technologies that we know today. The interesting thing about those technologies is that they don't need a great power source up in space to protect them. They are just chemical rockets, either solid or liquid. So we have the technology today.

The other thing out of C3 that interests me in those particular interceptors is that in their nose we would want some sort of sensor that would help to home in on the warheads of the Soviet Union. So interceptor technology plays a part in those interceptors as well as some processing on board to make the midcourse change as it homes in on to that warhead.

So what I believe is that if you went with a strategic defense, we have the technology today not only to have ground-based kinetic energy interceptors with their sensors on board, but we also have similar kinetic energy technology that is available to us for space-based interceptors.

The neutral particle beams and the directed energy weapons are coming along in the research phase and I agree with you they need more energy, but I believe that can be fixed. We do not want to build a power station in the sky as big as some of our opponents said in the first instances of this.

I believe that too many people with too little knowledge jumped on the bandwagon in the early days and said there is not enough power or computational capability, you cannot manage this whole battle force and they are talking from a depth of ignorance that is unparalleled.

What we have done over the last several years is, I think, to do some very, very constructive research that shows that, in fact, we do have the capability to put forward a defense of some rudimentary nature that would provide a great deterrent to our adversaries.

Mr. MILLER. That is encouraging, Dr. Smith. Thank you. Thank you, Mr. Chairman.

BUDGET PRIORITIES

Mr. MURTHA. Thank you very much, Dr. Smith.

Let me add, I asked you the question about priorities. I am still not satisfied, I wish you would look at that question and think about it and add something for the record because as we go through the budget, priorities are going to be a key. Nobody likes to see their budget cut, but I think you have to think about what needs to go to the field and we need to see those priorities because some of this equipment is not going to get to the field.

When they talk about slowing down big problems like the B-2, you know some of these things are going to be slowed.

We need to know what programs you think are important to get out to the field and their priorities.

So I wish you would think about what you did in Grenada, what the problems were, how you have overcome those problems, and what communication equipment has to be fielded to address those problems. You may answer that for the record.

Dr. SMITH. We would be glad to.

[The information follows:]

I must preface my remarks with the observation that the Grenada Operation has earned some largely undeserved notoriety. The military actions on Grenada were, it must be remembered, a success. The military and political objectives were achieved with minimal loss of life and minimal collateral damage.

As from any military operation, there are always lessons to be learned. The complexity of bringing military forces from different commands and different locations to the objective area under virtual no-notice conditions was a unique event in recent U.S. military history. While there were some technical interoperability problems during the exercise, analysis has fairly well substantiated that few if any of these were unknown, or that they could be substantially improved by new equipment. ———. Many of the problems were a result of operational decisions not to include communications planners in the development of the plan and decisions not to employ certain available communications assets. In subsequent military operations such as ELDORADO CANYON, we experienced an entirely different approach to planning and execution, thereby ensuring that none of the previous mistakes were repeated. Moreover, the JCS has instituted a series of no-notice exercises designed to stress test communications and contingency plans under time compressed scenarios. Additionally, the Unified and Specified Commanders have developed additional contingency communications plans which adequately address the specific requirements of short notice responses.

Mr. MURTHA. We have other questions for you to answer, Dr. Smith for the record.

Thank you, Dr. Smith and Dr. Quinn.

Mr. SMITH. Thank you, Mr. Chairman.

Mr. QUINN. Thank you.

Mr. MURTHA. We appreciate your testimony.

The committee is adjourned.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

COMMUNICATIONS BUDGET & THE BUDGET "SCRUBS"

Question. How did the communication, command and control budget fare in the Pentagon's internal budget scrub prior to the submission to Congress of the DOD budget?

Answer. This past fall the funding requirements of all C3 programs were carefully reviewed and scrubbed to ensure that priority programs remained viable within the increasingly constrained total DOD budget. During this review, funding for a number of C3 programs was adjusted, and several major C3 programs such as the Airborne Warning and Control System (AWACS) Radar Sensitivity Improvement Program (RSIP) underwent a thorough restructuring. The end result of the budget scrub was that the C3 area took its fair share of the DoD budget reductions and, although in a more austere fashion, the budget request is still able to meet most of our priority C3 requirements.

Question. Do you expect any significant revisions in the present budget "scrub" which will get the Defense budget down to a no real growth level?

Answer. Due to the significant reductions that have already been imposed on the C3 area, no significant changes to the C3 budget are expected. However, it is expected that C3 programs may have to take some share of the reductions, if necessary, to meet the target budget levels.

Question. In your statement you mention that reductions from your budget request may necessitate: Termination of additional programs; deferral of others; and possibly negating past gains.

If fiscal realities should force further reductions in the C3 budget, is it your belief that certain programs should be eliminated or do you think various downward revisions should be made to numerous programs?

If further budget reductions must be made in the C3 area, do you believe they should be made in strategic programs, or in theater/tactical programs?

Answer. In cases where a program can be restructured to provide less capability or fewer units while maintaining efficient production, then downward revisions are possible. Other possible downward reductions, while not desirable, could be made by making minor delays in programs. However, given the number of downward revisions in funding that have already been incurred by many programs, terminating programs is unavoidable with further reductions.

With the priority which has been placed on modernizing our strategic C3 capabilities and the fact that many of our strategic C3 programs have been scaled back from their original designs, the bulk of any further budget reductions will probably have to be taken from other C3 mission areas. These reductions should not be limited to theater/tactical C3, but should also include defense-wide C3 programs.

ROLE OF DOD C3 IN DRUG INTERDICTION

Question. An important role of the Defense Department in the drug interdiction effort will be to help integrate U.S. government-wide assets in command, control, communications, and technical intelligence; into an effective communications network.

Describe to the Committee the difficulty of integrating portions of the communications assets of the many U.S. governmental agencies involved in the drug interdiction effort.

Answer. If the DOD were just now getting involved in the integration effort, it would prove to be a very difficult task. But this is not the case. The DOD has been involved for several years in setting up the infrastructure and providing the technical support to ensure that secure, interoperable, interagency communications would exist to support drug interdiction efforts. The DOD provides the major communications connectively (to include satellite channels, ground equipment, communications security equipment) for the HAT TRICK contingency operations. DOD chaired and provided the technical support to the Bahamian Communications Working Group which developed and implemented the communications solution for the Bahamas. DOD chaired and provided the technical support for the interagency Working Group for Drug Enforcement Communications which developed the National Telecommunications Master Plan for Drug Enforcement (Master Plan), and currently provides the technical support for the Communications Interoperability Working Group of the Science and Technology Committee (National Drug Policy Board).

Question. To what extent will the integration of these assets be a matter of making adjustments to existing communications assets; as opposed to procuring new hardware?

Answer. The DOD has developed a sound approach for integrating C31 into an effective communications network. As outlined in the DOD Report to Congress—1989, the DOD will build on the approved Master Plan in the development of an implementation plan. The approach includes modifying and updating identified interagency information transfer needs and analyzing the communications requirements to satisfy these needs. The technical solutions in satisfying these communications needs will vary depending on the results of the analysis; but, it will certainly include adjusting existing communications assets and procuring new hardware.

Question. On May 1, 1989 the DOD wil report to Congress on a detailed plan for the integration of command, control, communications in the drug interdiction effort. Among other things, this report will "assign responsibilities". Will there be a "Communications Czar" within the drug interdiction effort or do you anticipate that there will be a lot of inter-agency and inter-departmental "squabbling" over the integration of communications assets in the drug interdiction effort.

Answer. The DOD does not anticipate there being a "Communications Czar" in the sense of one person or group "controlling" all the communications assets that are used for interdiction efforts. Most of the communications assets currently supporting this effort and some of those that will be acquired serve a multi-purpose function. Very few assets are solely dedicated for the drug interdiction effort. For example, a STU III located on the Commissioner of Customs desk will be used for a variety of purposes to include interdiction and other administrative uses within the agency. Also, there are many communications sub-systems that are unique to an agency that are supporting interdiction efforts. Therefore, it is anticipated that the roles and responsibilities for the communications network may be spread among several agencies. The Communications Interoperability Working Group (CIWG) of the Science and Technology Committee (National Drug Policy Board) was formed to provide the required oversight and bring the communications together. The cooperative spirit among the communicators has been outstanding and the plans mentioned in question one were developed and accepted by the participating agencies. This cooperation continues to flourish in the CIWG which is currently developing the overall implementation plan for drug enforcement and anticipates that the involved agencies will fully implement the plan when it is developed and approved for implementation by the "Drug Czar." The result is that we do not anticipate squabbling among the participants because they have been an integral part of the whole process.

REDUCTION IN FUNDS FOR INTEROPERABILITY

Question. The Joint Tactical Command, Control, and Communications Agency (JTC3A) was established in 1984 to manage tactical Command, Control, and Communications (C3) interoperability following a review and recommendations by the Joint Chiefs of Staff in 1982.

The Office of the Secretary of Defense has reduced the Joint Tactical Command, Control, and Communications Agency (JTC3A) funding by $10 million in both 1990 and 1991, a reduction of some 15 percent each year.

Why was such a large cut made in the JTC3A budget?

Answer. The Agency had poor obligation and expenditure rates in the preceding years.

Question. Has an assessment of the impact on planned activities of JTC3A been made?

Answer. The Director of JTC3A has identified no significant activities which will be so severely curtailed as to warrant reprioritization of effort by this office or the Joint Staff. However, some reprioritization of activities remains a possibility.

Question. What activities will be reduced?

Answer. It appears that some support for the development of message text formats, some NATO harmonization efforts, and support to a number of international fora may have to be reduced. Some hardware interoperability testing may also have to be rescheduled.

Question. Was this cut in funds acceptable to the Director, JTC3A, the Director Defense Communications Agency (DCA), the Assistant Secretary of Defense, (Command, Control, Communications and Intelligence) (ASD C3I), and the Vice Chairman of the Joint Chiefs of Staff (VCJCS).

Answer. The issue was thoroughly examined, to include proposed alternatives. Reduced resources and competing demands mandated a prioritization of resources and all concerned supported the President's Budget.

COMMUNICATIONS INTEROPERABILITY AND THE AIR LAND BATTLE

Question. Interoperability of communications for the Air Land Battle approach to war fighting is absolutely essential. In the Air Land Battle approach the Army and Air Force will have a very large exchange of data and communications.

What is the status of communications interoperability of the key Army/Air Force systems which must interoperate within the Air Land battle approach?

Answer. Communications systems supporting the Air Land Battle run the gamut from man-portable combat radios to the space based segments of the Defense Satellite Communication System. TRI-TAC the joint service program to provide for all facets of battlefield communications to include terrestrial communications, COMSEC, message and voice switching, etc. is fielded in the European theater of operations and provides the requisite degree of interoperability. Improvements in the Ground Mobile Force (GMF) satellite communications systems will facilitate direct interoperability between Air Force and Army terminals, increasing system flexibility. Morever, a combined effort with our NATO allies for development of a universal modem will ensure improved access to communications satellites. HAVE QUICK has been fielded throughout the U.S. Air Forces in Europe (USAFE), and has been adopted and implemented as a NATO standard. The ground forces of the U.S. Army Europe (USAREUR) are provided HAVE QUICK access through USAFE air control parties, assigned to USAREUR units in accordance with joint doctrine. HAVE QUICK is being fielded in USAREUR helicopters at this time. In the interim, backward interoperability via UHF radio is possible. SINCGARS, when fielded in Europe will provide interoperability between USAFE and USAREUR elements in the air and on the ground. VHF ECCM with NATO allies will be provided by the exchange of liaison teams or via electronic gateways.

Question. To what extent have these systems been tested for interoperability between the Army and Air Force under "war game" conditions.

Answer. Interoperability, survivability, security, and flexibility of communications sytems are always objectives of U.S. and NATO military exercises. The communications systems of the U.S. European Command necessary for support of the Air Land Battle are tested daily during peacetime operations by elements of the U.S. Air Force Europe, and the U.S. Army Europe. On a regular basis, grand scale exercises, such as Reforger, test these systems under stressed conditions, adding the demands and capabilities of Continental U.S. (CONUS) based reinforcements to the backbone and tactical networks of the theater. A number of NATO exercises are conducted simultaneously with the U.S. exercises with principal objectives to test and evaluate communications interoperability.

These exercises are extremely important not only in testing the technical and procedural interoperability aspects of communications systems, but also in the educating and training of officers, non-commissioned officers, and enlisted personnel in all facets of planning, installing, and maintaining communications to support combat operations. Long planning cycles are an essential element of this training process, as are extended communications exercises prior to and during main U.S. and NATO exercises.

To inject an element of uncertainty and urgency into the exercise environment, the Joint Chiefs of Staff (JCS) have instituted a program of no-notice military exercises to simulate crisis contingency response problems. While such exercises must be carefully controlled by the National Command Authorities and coordinated with our NATO allies in the European Theater in order that we not signal the wrong military intent, these exercises have been conducted and are valuable tools in ensuring operational interoperability.

Question. Provide details for the record on which, if any, of the Army/Air Force communications systems which will be part of the Air Land battle do not properly interoperate.

Answer. Communications interoperability rests on three principles. First, we must build equipment that complies with technical interoperability standards which describe those physical and electrical properties necessary for the exchange of signals. Next we must ensure, through procedural interoperability standards that the information to be conveyed by the technical standards is of a format and medium intelligible to the intended recipients. Finally, the operating forces must be provided with the training necessary to effectively employ the systems.

Even with these interoperable technical and procedural standards, tried and tested systems, and operationally verified operating practices, delays in fielding certain equipments can complicate efforts to achieve interoperability. Carefully orchestrated logistic and administrative programs aren developed to ensure that interoperable and compatible systems are fielded among operating forces that may be joined from operating bases thousands of miles apart.

The Department of Defense is taking pains to ensure that the operating forces for the Air Land Battle will have interoperable communciations systems. We know of none that will be incapable of interoperability where required. Changes in current funding profiles, could of course, alter fielding plans and jeopardize this situation.

SECURE TELEPHONE UNIT III (STU-III)

Question. The STU-III is a secure telephone which is to be used by each of the services; the intelligence community; defense contractors; and various non-Defense governmental agencies which are involved in sensitive or classified work.

The Committee is advised by the National Security Agency (NSA) that the total buy of STU-III telephones, which was originally going to be as high as 1.2 million units, may now total as few as 200,000 units. Is that your understanding?

Answer. It is my understanding that the figure of 200,000 STU-III LCTs represents a rough estimate of the number of units that could be procured through fiscal year 1994 given the current level of funding specifically identified for this purpose in the Department of Defense's Five Year Defense Program (FYDP).

In addition to this central procurement, some of the Services are providing their base commanders the opportunity to use their Operations and Maintenance (O&M) funds to satisfy their STU-III requirements. Just how many more STU-III units will be procured under this method is not yet certain.

In order to obtain additional information on STU-III requirements and programming, I have, in my capacity as Chairman of the National Telecommunications and Information Systems Security Committee (NTISSC), tasked the federal departments and agencies to provide STU-III data to me by early May. This information should provide a current baseline for STU-III requirements.

Question. Has the threat of phone conversations being compromised lessened in recent years?

Answer. The threat against unprotected telephone communications has not lessened in recent years. If one considers the increased use of unsecured facsimile and the explosion of the cellular telephone market, the amount of information subject to exploitation has increased. The Assistant to the President for National Security Affairs, as recently as January 1989, attested to this fact by writing that, "the most significant hostile intelligence vulnerability in the U.S. telecommunications sector is the predominant use of unprotected telephones in all areas of defense/military . . . activities." "Due to this threat, the STU-III remains our highest priority INFOSEC system security program for implementation by the federal agencies."

Question. If not, what accounts for the significant drop in the number of STU-III telephones projected to be purchased?

Answer. I do not think that the drop in the number of STU-III LCTs projected to be purchased is the result of a drastic change in the need for this device, but, rather, reflects decisions made by the Services and agencies regarding the affordability of security improvements in the face of a less robust defense program. Communications security programs compete against all other defense requirements for a share of available resources. With the Services' priorities given to sustaining/enhancing tactical warfighting capability, fewer dollars were provided to support this strategic communications security program. However, I believe that the significant vulnerability posed by the unprotected telephone requires continued investment in this program at a level that will provide for reasonable growth in security coverage.

Question. Provide for the record the amount of funds included in the fiscal year 1990 budget for STU-III telephones and the number of units to be procured?

Answer. Total STU-III LCT procurement funding included in the fiscal year 1990 budget is $12.1 million. Using an average of the prices on the current contracts, which remain valid through early 1990, it is estimated that approximately 5,300 STU-III LCTs could be procured with the dollars budgeted. In addition to those funds specifically identified for STU-III procurement, some of the Services are pursuing the option of decentrally procuring STU-III units at the base commanders level through Operations and Maintenance (O&M) funds.

Question. What is the current per unit price?

Answer. The price of the STU-III LCT varies by manufacturer. The current contract prices for the basic STU-III LCT, are as follows: Motorola, $2099; RCA, $2200; AT&T, $2899.

Question. What is the projected per unit price if the procurement ends up being much lower than projected?

Answer. It is not possible to accurately determine the future per unit price of STU-III LCT procurements because the revalidation of the requirements, and therefore, the number of units to be procured, is still in progress. It is reasonable to assume that there would be some pressure for slight increased per unit cost should the number of units procured be substantially reduced.

UHF FOLLOW-ON SATELLITE

Question. In fiscal year 1989, the Navy requested, and received from Congress, authorization to procure ten UHF Follow-On satellites under multiyear procurement, as a replacement to the current Fleet Satellite Communications system. Less than three months after this approval passed into law, the DOD Inspector General issued a report claiming that the Navy does not have a firm requirement for ten satellites, and that $780 million could be saved by reducing the quantity and by deleting the unnecessary requirement for nuclear hardening.

What is your view of the DOD Inspector General's report and why?

Answer. The Inspector General's audit charter was to review the effectiveness of the Defense Acquisition Board (DAB) process and compliance with applicable Department of Defense (DOD) directives and instructions. The audit reviewed the UHF Follow-On program as one of a number of major systems scheduled for a milestone review during fiscal year 1988. In the audit report, the IG has expanded its focus beyond DAB procedures to a review of the UHF Follow-On program including the acquisition decision and validated operational requirements.

For the most part, the IG's report on the UHF Follow-On resurrected issues that had been thoroughly discussed and reviewed prior to program approval and focused on cost savings without regard for operational considerations. Reconsideration of the IG's concerns on the number of satellites and nuclear hardening led to the conclusion that the cost savings, if any, did not outweigh the operational advantages of the approved program. Furthermore, it is clear that in order to provide continuous on-orbit Ultra High Frequency (UHF) Military Satellite Communications (MILSATCOM) service to the multitude of users, it is imperative that UHF Follow-On program proceed without delay.

At the time of program approval, the DAB, as well as the Office of the Secretary of Defense (OSD) Command, Control, Communications, and Intelligence (C3I), concluded that adequate information was present to make an informed Milestone IIIA decision to proceed with the first satellite. Prior to the approval of fiscal year 1990 funding for satellites No. 2–10, the DAB will have the opportunity to review the production decision with a Milestone IIIB meeting.

Question. The Inspector General (IG) recommended that the Under Secretary of Defense for Acquisition postpone authorizing any production of satellites beyond the first unit until the Navy provides a stronger justification, including a system threat assessment report and a cost-benefit analysis. Has this been done, and if not, why not?

Answer. The UHF Follow-On program has been in the planning stages for many years. During this time, the Navy has repeatedly provided adequate justification for the system. Since the entire Navy, as well as other US tactical forces, are now dependent on UHF satellites for communications, there is no question on the justification for the system. The only question is what type of system and this issue has been analyzed for years.

The IG report stresses the monetary savings resulting from a 5 (4 satellites plus 1 spare) vice 10 (8 satellites plus 2 spares) satellite constellation without concern for operational requirements, performance of satellites to date, technical risk inherent in the design of a large satellite and launch vehicle costs/limitations. The requirement for 2 satellites per foot-print system (8 satellites) was directed by Memorandum, Joint Chiefs of Staff (MJCS) 68–88 in support of operational requirements expressed by the Unified Commanders and the Services. The issue regarding the number of satellites was studied by Aerospace Corporation in an independent study conducted in 1986. The study concluded that the cost savings associated with 4 large satellites do not outweigh the operational advantages obtained from 8 smaller satellites. An 8 satellite constellation will provide ease in transition from the current MILSATCOM constellation to the UHF Follow-On, greater East-West positioning flexibility, and significant benefits related to service continuity (i.e., redundance and launch options).

In preparation for the Milestone IIIB decision tentatively scheduled for August 1989, the DAB has requested the Navy to provide the following additional information:

A complete report on technical testing;

A review of the status of spacecraft No. 1;

Costs based on contractor proposal for both a 4 and 12 channel Extra High Frequency (EHF) capability; and

The results of a study to minimize launch costs.

Prior to approval for fiscal year 1990 funding for satellites No. 2-10, the DAB will have the opportunity to review the production decision with a Milestone IIIB meeting supported by the requested information and an updated Test and Evaluation Master Plan.

Question. Why is an EHF communications capability necessary for the UHF, given the future EHF capability of the MILSTAR satellite system?

Answer. Contrary to the statement contained in the question, it is not at all clear that an EHF communications capability on the UHF Follow-On is necessary. One of the principal purposes of the DAB this summer is to determine if an EHF capability is desirable, affordable, feasible, etc. At this time, it is premature to prejudge the outcome of the DAB.

There are two distinct parts of the EHF add on decision. First is an EHF TT&C capability and second is an additional communications capacity similar to MILSTAR. The desire to add the TT&C capability is based on DOD's desire to transition from the standard L band TT&C now used on most DOD satellites to a new highly protected EHF TT&C capability similar to that used on MILSTAR. A decision on the EHF TT&C capability will be based on costs and impact to the ongoing program. A decision on the communications part of an EHF upgrade must be based on entirely different factors.

Arguments can be made both pro and con for an EHF communications capability on the UHF Follow-On. According to loading analysis all MILSTAR communications requirements cannot be satisfied on the planned MILSTAR constellation. Consequently, it would appear that an EHF capability on the UHF Follow-On would be useful and this is one of the principal reasons why the requirement for an EHF add on capability was directed by JCS 68-88 in support of operational requirements expressed by the Unified Commanders and the Services. On the other hand, the Services are not buying terminals at a rate anywhere close to those anticipated in the approved communications capacity requirements. From this standpoint, it is not at all clear that an EHF communications capability is necessary on the UHF Follow-On program. One of the principal purposes of the DAB is to resolve this issue and make a final decision on the addition of an EHF communications capability to the UHF Follow-On program.

MILSTAR SATELLITE COMMUNICATIONS SYSTEM

Question. The MILSTAR Satellite Communications System is a joint service program to develop and acquire the MILSTAR extremely High Frequency (EHF) satellite; the mission control segment of MILSTAR; and MILSTAR communications terminals.

The MILSTAR program began in 1981. The first MILSTAR satellite is scheduled ———. The Committee will hold a separate hearing on the MILSTAR program at a future date, but we do have a few questions at today's hearing.

What are the major milestones for the MILSTAR program for fiscal years 1990 and 1991?

Answer. ———.

Question. The Committee is advised by the GAO that concerns about the affordability of the MILSTAR system have resulted in, program cancellation actions; reduction in planned terminal procurement; and delays in terminal deployment schedules.

The Committee is advised that some officials are very concerned about the prospect of launching satellites and not having enough terminals to use the available capacity.

How do you make sure that the individual service budget requests provide for all the necessary terminals that are needed to assure that the terminals are there when the satellite is available?

Answer. Terminal schedules are changed to reflect the satellite schedule and budget realities and there are no specific number of terminals that have been designated "as necessary" when the satellites are available.

Question. Who makes that decision and on what basis will the production decision be made—the overall program priority or the individual service's priorities?

Answer. Production and priority decision for MILSTAR terminals are made by the Defense Acquisition Board (DAB) chaired by the USD(A). DAB decision on low rate initial production for Navy and Air Force terminals are planned for in May and the decision on Army terminals will be made next fall.

Question. Is the Army fully committed to procuring an adequate number of MILSTAR terminals? If not, please explain.

Answer. The Army has agreed to provide enough terminals to meet the needs of the Non-Strategic Nuclear Forces (NSNF). The number of terminals necessary to meet NSNF needs was based on an extensive study conducted by the JCS. The Army has elected not to buy any terminals to meet generic Army needs.

Question. The MILSTAR terminals are being designed to be survivable. However, not all of the input-output devices needed to pass messages from one user to another user are built to the same nuclear survivability standards as the terminals themselves. Without these devices, the terminal cannot pass messages.

If various input-output devices do not meet survivability levels of the terminals themselves, what are the deficiencies and how are you going to correct them?

Answer. Input-output devices or end equipments such as teletypes, multiplexers, voice encoders, etc., were not built as part of the MILSTAR program. As such, some of them are not as hard as much of the hardware that was specifically constructed as part of the program. However, most of these equipments will be deployed in shelters which are hard. Consequently, most of the MILSTAR system will have an end-to-end hardened communications capability.

Question. When will we have a total system built to the MILSTAR survivability specifications?

Answer. For most MILSTAR users which utilize hardened shelters, MILSTAR will have a hardened communications capability as soon as the system enters operational service.

Question. Efficient and effective use of communication satellites depends on procedures called protocols. A protocol is defined as a means whereby two or more users exchange messages using predefined rules. The Committee is advised that because each service decided what its terminal design would do, DOD still has not decided what specific communication protocols must be in each Service MILSTAR terminal.

Why have the communication protocols that will be in each service's MILSTAR terminals not been decided?

Answer. The protocols for all MILSTAR terminals that are now under development have been decided. These decisions were made when the terminal was designed in accordance with the MILSTAR system specification SR 1000.

Question. If the protocals are changed after the terminals are in production, what changes would have to be made to the terminals and how expensive would those changes be?

Answer. The answer to this question depends on what changes are to be made and to what terminals. Since neither of these specifics were stated in the question, it is difficult, if not impossible, to answer the question. As a general response, once the terminal has been designed and developed, it is expensive to make changes and hardware changes are usually, but not always, more expensive than software changes.

Question. Why do individual services decide what capabilities they will incorporate into their terminals?

Answer. ———.

Question. Provide for the record the procurement profile and deployment schedule for the various terminals—land based, sea based and air based—for the MILSTAR program.

Answer. Following is the procurement profile for MILSTAR terminals. Installations will occur about 2½ years after the terminals are procured. It should be noted that this schedule does not include EDM terminals that were acquired as part of the development program. ———.

TACTICAL WARNING/ATTACK ASSESSMENT

Question. Currently, the missions of tactical warning and attack assessment are carried out by ——— satellite. According to DOD plans, future requirements will be satisfied by SDI's Boost Surveillance and Tracking System (BSTS) satellite. In your view, what are the specific DOD requirements for tactical warning and attack assessment that cannot be met upgrading the current ——— satellite?

Answer. ———.

Question. Are we experiencing significant problems in today's performance ———, and if so, what are they?

Answer. ———.

HAVE QUICK

Question. HAVE QUICK is a radio which provides a secure, jam-resistant, air to air, and air to ground voice communications capability in the UHF frequency range. The Air Force initiated the HAVE QUICK program and in 1983 it was expanded to include all of the military services. As presently planned, combined cost estimates for the HAVE QUICK program exceed $1 billion.

According to the Committee's investigative staff, the Navy is reportedly planning to purchase one radio for its aircraft which will be compatible with HAVE QUICK radios and the SINCGARS radio. The Air Force is planning to purchase two radios for its aircraft, one for HAVE QUICK and one for SINCGARS.

What are the cost implications to the Air Force of having to equip its aircraft with two radios, one each for HAVE QUICK and SINCGARS capability?

Answer. Before answering the specific questions posed by the committee some general explanation of the HAVE QUICK and SINCGARS programs is necessary to clarify some misconceptions. Both HAVE QUICK and SINCGARS are electro-magnetic waveforms, they are not radios. These waveforms operate in the military UHF and VHF portions of the radio frequency spectrum, providing anti-jam protection. Radios can be built that incorporate one or the other, or both waveforms, depending upon the requirements. Aircraft radios, for example are most economically built to the "form and fit" dimensions of the radios that they are replacing. Since modern tactical air support and anti-air warfare aircraft are space and weight constrained, plug-in and plug-out replacements for the replaced radios are important. This prevents changing critical weight and balance factors, and precludes the necessity of costly aircraft modifications which could easily exceed the cost of the radio many times over.

The cost implications are significant. The Air Force does not have an operational requirement for SINCGARS in all tactical aircraft, but it does have a requirement for at least two UHF radios in every tactical aircraft. The radios selected for the Air Force HAVE QUICK program are simply variants of the existing radio, the AN/ARC-164, common to all Air Force aircraft. The radio selected to provide VHF electro-counter counter measure (ECCM), SINCGARS, must fit in the space now filled by the AN/ARC-186 for close air support aircraft like the F-16 and A-10. Any solution that required a change in the airframe, e.g. use of the Navy's AN/ARC-210 or the Army airborne SINCGARS radio would require extensive modification of aircraft electrical systems and aircraft structure as a minimum. SINCGARS, and to some extent HAVE QUICK, will ensure that ground forces can communicate with close air-support aircraft and that short range air defense ground forces can coordinate with friendly aircraft penetrating their areas of responsibility.

Question. Has the Air Force considered the feasibility of procuring the Navy radio which has both SINCGARS and HAVE QUICK capabilities instead of two separate radios?

Answer. The Navy AN/ARC-210 radio will not fit in the Air Force aircraft without very costly airframe modifications. Moreover, the cost of improving the AN/ARC-164 from non-anti-jam capability to HAVE QUICK II capability is on the order of five thousand dollars per radio. The cost of one AN/ARC-210 is about eight times that price.

Question. What is the Navy's rationale for independently developing a new radio?

Answer. The Navy combination, electro-counter countermeasure radio, the AN/ARC-210, is a "form-fit" replacement for the NAVY AN/ARC-182, an earlier combination, but non-anti-jam radio. Additionally, it accommodates requirements unique to Navy aircraft, such as data bus interface for the F-18 and remote control capabilities.

Question. What are the additional costs to the Navy resulting from this decision?

Answer. None. In fact Navy cost analysis in July 1988 indicated that the recurring and non-recurring costs estimate for using the AN/ARC-164 (HAVE QUICK variant), and the Air Force AN/ARC-205 SINCGARS radio would be approximately double that of continuing the development of the AN/ARC-210 combination radio. This analysis did not include the cost of airframe modification necessary to accommodate the removal and reinstallation of existing avionics for integration of two stand alone radios.

Question. What interoperability problems does it cause?

Answer. None. The radio is backward interoperable with older generation, non-anti-jam VHF and UHF radios, and with all other SINCGARS and HAVE QUICK radios. It has built in pre-planned product improvement capability to accommodate enhancements as well.

Question. Although HAVE QUICK is a joint program requiring inter-service interoperability, each Service manages its own program. The Army purchases HAVE QUICK through the Air Force. The Navy is developing one radio with both HAVE QUICK and SINCGARS capability. Do you think DOD should have just one HAVE QUICK program rather than a program for each Service?

Answer: The DOD has only one UHF ECCM program, HAVE QUICK. The waveform is under configuration management by the Joint Tactical Command, Control, and Communications Agency, and has been accepted by NATO as a standard. Each of the Services implementing HAVE QUICK, the Navy and the Air Force, have distinctly different requirements for the radios that use the HAVE QUICK waveform because of differences in aircraft design. As adumbrated, size and weight of the radio, location of radio control panels, existing aircraft power and communications cables, etc. mandate different radio design features. These requirements can only be satisfied by different radio programs.

Question. What would be the advantages and disadvantages of having just one program?

Answer. There are no advantages to having just one UHF ECCM radio program for the reasons previously stated. The Air Force is satisfying Army aviation radio requirements because of "form fit" factors in the replacement of Army helicopter radios. The Navy and Marine Corps aircraft use common avionics and radios. On the ground side of military requirements, the Air Force program is satisfying all Air Force, Army, and Marine Corps needs.

Question. The Army does not plan to generally field the HAVE QUICK radio. It will deploy it with its helicopters, but will not deploy it with its ground troops although an Air Force forward air controller on the ground with the Army will have a HAVE QUICK radio. From your perspective, is there a need for some Army ground forces to have HAVE QUICK radios?

Answer. Yes. The Army is planning to procure HAVE QUICK radios for its aviation battalions.

JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM

Question. The family of Joint Tactical Information Distribution System (JTIDS) Class II terminals is being developed to provide tactical aircraft, ships, and ground forces a jam-resistant, secure, digital communications (data) capability to distribute information regarding position location, target identification and acquisition, and navigation information. The fiscal year 1990 budget includes about $235 million in RDT&E funds for JTIDS Class II terminals. However, the Army, Navy and possibly the Air Force are greatly reducing their planned future requirements for JTIDS II terminals.

How do you explain the budgetary emphasis that is placed on RDT&E for JTIDS at the same time that the Services are greatly scaling back their requirements?

Answer. The $235 million of RDT&E funds for fiscal year 1990 are required for terminal development, platform integration, testing, training, and logistics. There have been no reductions in future JTIDS Class II terminal requirements by the Services that we are aware of. However, terminal affordability and operational effectiveness are drivers for determining future terminal requirements.

Question. The 1981 Joint Operational Requirement (JOR) for the JTIDS Class II terminal specified an initial operating capability (IOC) in 1987. Significant technical problems and operations issues have delayed the IOC.

Considering the delays due to technical problems and operations issues, what is the revised IOC for the JTIDS Class II terminals in each of the services?

Answer. The IOC dates for the JTIDS Class II terminals by Service are as follows:

Air Force: November 1991 (F–15).
Navy: September 1993.
Army: April 1993.

Question. Are all the various terminals configurations being developed directly interoperable?

Answer. JTIDS Class II terminals are interoperable by insuring that TADIL J messages have been implemented to meet service mission requirements in the respective platform terminals.

Question. 1982, DOD has had nine drafts of the Test and Evaluation Master Plan (TEMP) for JTIDS Class II terminals and fielding thereof. As of January 1989, there is not an approved TEMP.

Given the importance of testing to assure successful joint operation, why doesn't the DOD presently have an approved TEMP plan for the JTIDS Class II terminals?

Answer. Army and Navy have TEMPs for the JTIDS Class II and Class II M terminals. The Air Force is developing a joint TEMP with inputs from the Army and Navy. Approved joint TEMP for JTIDS is expected prior to the JTIDS DAB in August 1989.

Question. How many draft plans have been developed and what are the obstacles?

Answer. Since 1988 two draft joint JTIDS TEMPS have been developed. The final draft will be coordinated for signature on 24 April 1989. Developing a joint TEMP has proven to be a difficult task due to varying Service test schedules and defining multi-Service test requirements.

Question. Will interoperability testing be conducted before JTIDS terminals are in production?

Answer. Interoperability testing will be conducted by all Services prior to full scale production scheduled for 1st quarter 1993.

Question. Who is responsible and accountable to insure that interoperability testing is accomplished?

Answer. The Air Force, as lead Service, and with other Services participating, is responsible for ensuring that interoperability testing is accomplished.

Question. Early tests of JTIDS showed significant problems with electromagnetic interference (EMI) and frequency allocations.

Do frequency management and electromagnetic interference (EMI) problems still exist with the JTIDS terminals?

Answer. No Electromagnetic Interference (EMI) problems have been identified with the JTIDS Class 2 terminal, but the means to assure interference-free operations have not been fully worked out with National Telecommunications and Information Administration (NTIA). JTIDS Class 2 frequency certification, which will lead to frequency allocations at user locations, is expected prior to a production decision. This certification will be based on EMC test results and a plan to resolve outstanding issues. These issues are currently being addressed by the DOD, NTIA, and FAA to ensure JTIDS compatibility with other users of the spectrum. While frequency management problems are a function of the restrictions placed on JTIDS, these problems are expected to decrease with the certification of the JTIDS Class 2 terminals.

Question. If so, are corrections possible and at what costs?

Answer. These problems are being resolved with existing funds. Anticipate that no additional significant funds will be required.

Question. According to the Committee's Investigative Staff, threat assessment for JTIDS indicate that it is possible to jam, identify, and locate JTIDS with currently fielded Soviet equipment. During operational testing of JTIDS, it was demonstrated by simulation that JTIDS operation could be effectively disrupted.

How effective is JTIDS currently expected to be against Soviet equipment?

Answer. We are unaware of any existing threat that will render JTIDS ineffective. JTIDS is expected to provide significant operational warfighting effectiveness against known Soviet equipment.

Question. How effective is JTIDS expected to be against future Soviet equipment at the initial operational capability (IOC), and IOC plus 5 years?

Answer. JTIDS is expected to be operationally effective against Soviet equipment through the year 2000. Ongoing P3I efforts, such as antenna nulling techniques, will provide JTIDS operational effectiveness against Soviet equipment beyond the year 2000.

Question. The interoperability of JTIDS is dependent upon the coordination of fielding plans among the Services/forces likely to operate together in an operational scenario.

Who is responsible for the coordinated development of Service fielding plans?

Answer. The Joint Chiefs of Staff (JCS) have developed and are updating the JTIDS Joint Operational Requirement (JOR) and Concept of Operations (COP). The JOR and COP are coordinated with the CINCS who develop war plans for each of their respective theater of operations. the TADIL J messages prescribed by the Services to meet the missions of these war plans are then incorporated by the JTIDS Joint Program Office into the Services' platform mission computers, which are integrated with the JTIDS class 2 system.

Question. Who has the accountability to make the coordinated development happen and who will be held accountable if the coordination is not effected?

Answer. OSD and the JCS are coordinating the JTIDS development and will provide effective oversight and program compliance.

Question. What will be the impact on combat forces if fielding, is not coordinated and properly effected?

Answer. If JTIDS is not properly effected on the battlefield, the impacts to be expected are: lack of interoperable forces, less than optimum use of JTIDS capability, and overall degradation of force performance. However, these issues are recognized and are being addressed through development of a joint Concept of Operations (COP) by the JCS.

Question. Recently, based on a Congressional requirement, the Office of the Secretary of Defense (OSD) has a greater involvement in managing JTIDS. Contrast the current management structure for JTIDS with the structure prior to the greater OSD management role.

Answer. The current OSD management structure allows for a direct, pro-active interface with the Services on all joint issues as well as Service specific issues. This approach assists the lead Service, Air Force, in resolving difficult issues which cut across the Services, contractors, and civilian departments such as the joint TEMP, frequency certification with NTIA, and direct guidance on DOD policy. This management structure allows interfaces with other OSD elements to be simplified and more effective in obtaining results.

Question. What resources, civilian and military, does OSD have assigned to JTIDS management? What is the organizational structure?

Answer. OSD has assigned a civilian senior staff specialist to manage the JTIDS program in ASD(C31): Theater and Tactical C3 (T&TC3) division. No other changes in organizational structure is anticipated. This staff specialist works directly with other OSD elements and the lead Service to execute tasks as well as with the individual Services for Service specific tasking.

Question. Please describe how OSD controls JTIDS funding differently than the Joint Project office previously did.

Answer. OSD controls only RDT&E for joint/common JTIDS development tasks. The Services retain funds for platform integration and JTIDS terminal acquisition. OSD ensures that joint/common JTIDS tasking is fully funded and executed in accordance with program milestones developed by the JPO.

MULTIFUNCTION INFORMATION DISTRIBUTION SYSTEM (MIDS)

Question. The DOD budget includes funds in fiscal year 1990 to continue development of the Multifunction Information Distribution System (MIDS), in cooperation with our NATO allies. This system would be similar to the U.S. JTIDS program, but for different aircraft.

What is MIDS, and why is it important?

Answer. The Multifunctional Information Distribution System (MIDS) is a one-third scale JTIDS class 2 terminal required for space constrained fighter aircraft. The MIDS terminal will make extensive use of Very Fine Speed Integrated Circuits (VHSIC) and Miniaturized Microwave Integrated Circuits (MMIC) to achieve the size reduction. Seven nations (U.S., U.K., France, Italy, Spain, Germany, Canada) are participating in this Nunn initiative MIDS program. The MIDS program is scheduled to enter Full Scale Development (FSD) in April 1990.

Question. When the Navy cancelled their own JTIDS program a few years ago, the opportunity to incorporate JTIDS into the F/A-18 aircraft was lost. However, the MIDS terminal now under development could fit into our F/A-18 aircraft. In fact, it is expected to be installed into the Canadian F/A-18s, but not our own aircraft.

Given the important mission of the F/A-18 and the improved capability and interoperability offered by MIDS, what is your office doing to make sure that the Navy is making the right decision in this area?

Answer. The USD(A) has recently requested the Services to review their requirements for a MIDS low volume (LV) terminal to support TADIL J in F/A-18 & F-16 fighters and future platforms. The Services' response to this memo is expected in May 1989.

Question. Do you believe that MIDS would not be a cost-effective addition to the F/A-18?

Answer. We believe that MIDS is currently the only available cost effective alternative to implement TADIL J in space constrained fighters such as the F/A-18 and F-16.

OVER-THE-HORIZON-BACKSCATTER (OTH–B)

Question. The Over-the-Horizon Backscatter Radar is to provide long-range, wide-area, all altitude surveillance. The Air Force is in the process of building, or planning to build four separate OTH–B systems at a total cost of $2.7 billion including RDT&E, procurement and military construction.

A total of $378.9 million is requested for the OTH–B including $229 million in the Other Procurement, Air Force account. Fiscal year 1990 funds are to be used to procure sectors of the OTH–B radar system in Alaska and 1991 funds are to begin procurement of sectors for the North Central states.

According to the GAO, states under consideration for the Central Radar System (CRS) component of the OTH–B program are North Dakota, South Dakota, and Minnesota. Are any of these potential locations more advantageous than the other for whatever reasons, or do you anticipate that more than one state may serve as sites for different sectors of the OTH–B?

Answer. Since the OTH–B radar is a bi-static radar, the transmitter and receiver sites must be separated from each other by 50–100 miles to prevent mutual interference. This separation can lead to these sites being in different states, as is the case for the West Coast Radar System where the transmitter site is in Oregon and the receiver site is in California. In addition, the operations center for each radar should be located on an existing Air Force base for security and supportability reasons.

The Record of Decision for the Central Radar system, which announced the selection of the study areas from which the exact transmitter and receiver sites will be chosen and the planned location of the operation center, was released last summer. The operations center will be located at Grand Forks AFB, North Dakota, the receiver near Thief River Falls, Minnesota, and the transmitter near Amherst, South Dakota.

Question. When is the final site selection to be made for OTH system which will be in the North Central States?

Answer. The Air Force is working on the final site selections now. We are studying various parcels of land within each study area to determine which are most suitable. The final selection will be based on many factors, including environmental impact and mitigation measures, impact on the surrounding communities, type of terrain, etc. We anticipate the final selections to be made in late 1989 or early 1990.

Question. The primary justification for the four-sector Central Radar System is to detect and track sea-launched cruise missiles.

What is the current proven capability of OTH–B radars to detect sea-launched cruise missiles?

Answer. ———.

Question. At what point in time do you anticipate that the enhancements to the OTH–B capability to detect cruise missiles will be adequately tested?

Answer. ———.

Question. Will the testing on this capability assume that the Soviets have only "standard" sea-launched cruise missiles or will it assume that they have advanced cruise missiles with low radar signatures?

Answer. ———.

Question. Is the Air Force considering leasing rather than buying land for the Central OTH-B system?

Answer. The Air Force has stated in the Record of Decision on the Central Radar System that it will consider either leasing or buying land.

Question. If so, what is the rationale for doing this; what are the advantages and disadvantages of leasing vs. purchase?

Answer. The people who reside in the areas appropriate for the Central Radar System have often expressed concern that the land has belonged to families for generations, is productive farm land, and that removal of such large parcels of land from county tax rolls would be a tremendous financial burden on sparsely populated rural communities. The Air Force would prefer to use land that is offered for use, either on a lease or purchase arrangement. If land is leased, it would be returned to the owners for farming or other use upon deactivation of OTH-B. The land would remain on the tax rolls and under ownership of families who have owned it for many years.

Question. Are four sectors definitely planned for the OTH-B system to be located in the North Central states or is consideration being given to have only two sectors?

Answer. The Air Force has no current plans to have four sectors. Two sectors were removed due to budgetary constraints.

NAVY C3

Question. Recent studies conducted for the Navy by the Center for Naval Analysis (CNA) and the National Academy of Sciences concluded that C3 and battle management technologies will be critical if the Navy is to meet threats anticipated over the next 10-20 years.

Do you agree, and if so, what programs are of the highest priority?

Answer. We agree that C3 and battle management technologies are among the technologies which will be critical if the Navy is to meet the threats anticipated in the next century.

A review of these studies to identify the future warfare environment would indicate that the following areas will be key to success: (1) application of modern electronics to the functions of electronic battle management, (2) secure, jam resistent communications and network architectures, information management and software development, and (3) space technology for surveillance, communications and navigation.

Question. The National Academy of Sciences recommended a cooperative program for development of new Navy C3/battle management approaches, to be led by the CNO with participation from all the services and national agencies. This cooperative program would give special attention to signature-related technologies, ASW, and space. Do you agree?

Answer. There is general agreement that any new Navy C3/battle management approach should given special attention to signature management, ASW, and space. The cost of any new C3 and battle management system will be so great that it cannot be borne by any one service; thus it is both desirable and necessary for it to be coordinated with other services and agencies.

Question. What has been done to date, and what is your role in coordinating this effort?

Answer. Navy long range planning guidance includes areas such as signature related technologies, anti-submarine warfare, and space. Pursuant to this guidance, the Navy has intiated an effort to develop a long range research and development strategy which will consider the studies which have been conducted to date. A Navy executive level review is scheduled for this fall to review the anti-submarine warfare C3 status and plans.

I have no direct responsibility to coordinate this effort. My office will review the Navy long range plans when completed, and I will provide advice and recommendations to the Under Secretary of Defense for Acquisition regarding any proposals for a new start program.

Question. The CNA study was particularly critical of Navy C3 developments as it relates to ASW. For example, they said that after completion of current RDT&E programs, there will be—"a mismatch between the timeline of ASW C3 systems to the cueing needs of platforms," and—"marginal ability of ASW C3 systems to establish target location and track based on fusion of detections by independent systems." They recommend a high priority on C3 and data fusion RDT&E activities for ASW. Why is "sensor fusion" important for ASW?

Answer. External cueing of engagement platforms to target is vital in coordinated ASW. Rapid dissemination of real time information from a dispersed sensor network to forces that can re-detected and attack is the key. Quiet submarine technology exacerbates the situation and stresses today's system. Fusion of data from all sources and sensors is necessary. Multi-purpose sensors providing information that can be fused to provide timely intelligence on a target that indicates passage or presence of a target is the goal.

Question. Do you agree with these conclusions?

Answer. I agree that C3 and cueing are essential for successful ASW.

Question. What are the most important programs to improve this situation and why?

Answer. R&D programs that are key to ASW fusion and C3 include upgrades to existing ocean surveillance and processing systems and introduction of new active sonar technologies. As pointed out by the National Academy of Sciences report, the network of networks required for ASW and other warfare areas will be expensive, dependent on new and projected technologies, and will take years of sustained investment to develop. On going Navy study and analysis of ASW C3 requirements will continue to identify and address key technologies.

CHEYENNE MOUNTAIN

Question. We have discussed in a number of hearings this year the chronic management problems disclosed by GAO on the $1.3

billion computer upgrades at Cheyenne Mountain. What OSD oversight reviews have been conducted on this program during the last 5 years?

Answer. The last formal review of any of the programs by OSD was a June 1987 review of CCPDS-R, when the MAISRC approved Milestone II and delegated Milestone III for CCPDS-R to the Air Force. The other programs have received normal oversight in the PPBS and other existing processes since none of the other individual programs have exceeded the threshold requiring formal OSD oversight. ASD(C3I) personally made a visit to NORAD during October of 1988; but, this was more of a familiarization visit than a formal review of the programs. In addition, the DAB will conduct a formal review of the integrated Cheyenne Mountain modernization programs during FY 1989.

Question. GAO has issued three successive audits on Cheyenne Mountain, each successively disclosing more severe problems. How effective is the OSD oversight process in light of these findings?

Answer. The DOD acknowledges the problems documented in the GAO audits of the Communications System Segment Replacement (CSS-R) and Space Defense Operations Center (SPADOC) programs. With regard to the CSS-R, the Air Force presented Congress, on November 15, 1988, the plan to resolve the CSS-R deficiencies. With regard to the issues documented in the draft SPADOC audit, the DOD intends to use two near term milestone events, the SPADOC 4A Initial Operational Capability (IOC) and SPADOC 4B Critical Design Review (CDR), as major indicators to be presented to the Defense Acquisition Board (DAB) during their upcoming review of the integrated Cheyenne Mountain program. Recommendations from the DAB will determine how the Air Force is to proceed with the SPADOC Program. The DOD Is currently reviewing the third draft audit dealing with integration which incorporates many of the two earlier audits. This third audit identifies some areas, such as assignment stability of the program manager, that the Department expects to improve or stabilize. Although increased OSD oversight of such programs as the CSS-R and SPADOC Programs may prove beneficial, DOD believes the more critical issues are resolutions of the technical, schedule and financial problems. The level of oversight for future reviews of the Cheyenne Mountain acquisitions will be addressed by the DAB with the resulting DAB recommendation included in our report to Congress.

Question. Now that OSD is aware of these chronic problems—apparently for the first time—how will you fix them?

Answer. Two OSD oversight activities are significant to this program: (1) a single line item has been established for the Cheyenne Mountain Complex (CMC) Modernization Programs and is included in the President's Budget and (2) the DAB is going to conduct a program review of the CMC integrated modernization program during Fiscal Year 1989. A report to Congress will be provided immediately following the DAB review. With regard to the problems identified in the Communications System Segment Replacement (CSS-R), the Air Force has already provided Congress with a plan to correct the identified deficiencies. This report presents Air Force decisions and ongoing efforts to resolve program issues affecting the CSS-R. Space Defense Operations Center (SPADOC) has installed Block A in Cheyenne Mountain and will be declared operational in April or May. OSD will review the results of the Block B Critical Design Review to verify that the proposed corrective actions will correct the quantitive performance requirements and obtain the enhanced level of security required.

The Committee has been very pleased with the OSD MAISRC process. Yet the computers of Cheyenne Mountain are not subjected to this rigorous review, and apparently have been ignored by OSD for years.

Question. What criteria are used for computer systems to be reviewed by the MAISRC versus other less effective OSD reviews?

Answer. The Department of Defense employs a uniform system for acquisition programs whereby all equipment, facilities, and services are planned, designed, developed, acquired, maintained, and disposed of in accordance with the best management concepts for the system life cycle. This fundamental management philosophy applies uniformly throughout the DOD for major and nonmajor Defense acquisition programs, whether they involve automated systems or not. Management oversight of all acquisition programs is accomplished based upon pre-defined criteria which has been tailored for the appropriate level of complexity, value and mission criticality of the specific program to be reviewed. The Defense Acquisition Board is the senior acquisition management oversight body within the Department of Defense and as such has oversight responsibility for major Defense programs. When a major Automated Information System (AIS) meets the criteria for a major Defense system, it is appropriately reviewed by the DAB under the policies governing a major Defense system. For those major AISs falling below the threshold of a major Defense system, the MAISRC provides DOD oversight. Those systems that do not require formal oversight by the DAB or the MAISRC are reviewed by the DOD components, and the principles of DOD life cycle management apply.

Question. Why did OSD allow the budgeting for the Cheyenne Mountain upgrades (which cumulatively exceed $1.3 billion) to be fragmented, and the OSD oversight system to be bypassed?

Answer. When the DOD acquired the 427M program for the Cheyenne Mountain Complex (CMC), we discovered the many difficulties associated with replacing the complex CMC Tactical Warning/Attack Assessment systems with a single program. As a result, the Department concluded that the best acquisition strategy for the replacement of the current CMC systems was to use a series of acquisitions tailored along mission lines. Although we remain convinced that the current acquisition strategy is correct, we clearly recognize that the complexities of replacing one of the world's largest real time operational systems while maintaining 24 hours per day operations will always be a difficult and challenging task. The component CMC systems are being competitively acquired, with each program being won by a different contractor. The funding lines for the component acquisitions were in separate Congressional budget lines, which was consistent with the acquisition strategy of component upgrades. Oversight and formal reviews for these component programs have been conducted by the Air Force, since none of the component programs meet the major defense system criteria as defined by DOD policies.

Question. Explain why the computer upgrades at AFLC are treated as a coherent program with an overall architecture, but Cheyenne Mountain computers are not.

Answer. With regard to the need for an architecture for Cheyenne Mountain computers, the NORAD Cheyenne Mountain Complex (NCMC) Automated Data Processing (ADP) System Architecture (S) was published in January 1982. It, combined with the Ballistic Missile TW/AA Architecture, first published in 1981 and revised as the Integrated Tactical Warning and Assessment System Architecture, dated March 1, 1987, provides the overall guidance and planning direction for the integrated Tactical Warning/Attack Assessment system within Cheyenne Mountain.

Question. The CCPDS portion of Cheyenne Mountain was reviewed by the MAISRC at the Committee's direction and is apparently in good shape. All the rest are in trouble. What does this suggest?

Answer. The DOD acknowledges the difficulties involved in attempting to modernize the extremely complex but critical systems contained in Cheyenne Mountain, particularly in an environment which demands uninterrupted operational performance during the modernization and replacement of systems which is made even more difficult by the extremely limited space constraints of the Cheyenne Mountain Complex. We also fully recognize that errors have been made regarding these acquisitions; however, upon identification and verification of problems, the Air Force has in place a formal evaluation, corrective action, and oversight review process to respond to such unforeseen problems. Clearly, the individual programs involved in the Cheyenne Mountain upgrades have experienced varying degrees of difficulties. The Communications System Segment Replacement (CSS-R) has had its share of problems but has developed and submitted to Congress on November 15, 1988, a comprehensive corrective actions plan for CSS-R. SPADOC has experienced problems both of a technical and management nature that has resulted in a new contractor management team committed to successfully accomplishing the program. Two near term events, SPADOC 4A IOC and SPADOC 4B CDR, will be major indicators on how the DOD will decide to proceed with the SPADOC program. Granite Sentry has completed IOT&E for the Air Defense Operations Center after only two years of development. CCPDS-R has successfully completed CDR for the common missile warning processors and as noted is performing satisfactorily. SCIS remains on schedule and anticipates IOC in the third quarter of FY1991. In summary, as noted before, the process of modernizing and replacing the critical operational systems at Cheyenne Mountain is an extremely difficult task. Our overall assessment is that performance in general has been fair with room for improvement. The Air Force is presenting the integrated Cheyenne Mountain programs to the Defense Acquisition Board in FY1989 where the question of appropriate oversight for the future will be addressed.

JOINT TACTICAL COMMUNICATIONS PROGRAM (TRI–TAC)

Question. The TRI–TAC program is a joint service and Department of Defense agency program to develop and field modern Tactical multi-channel switched communications equipment for theater level (echelons above corps) use. The FY 1990 budget includes procurement funds for TRI–TAC in the following amounts: Air Force $126 million, Army $25 million, and Marine Corps $48 million.

The TRI–TAC program involves a long history and large amounts of funding. Although an exact aggregate figure is hard to determine, total obligations for TRI–TAC appear to have been in the billions of dollars.

What is the actual total DOD investment in TRI–TAC to date?

Answer. The total investment by the Services for TRI–TAC from 1970 to date which includes Procurement, RDT&E, O&M, and Milpers is as follows:

	Millions
Army	$2,782.8
Navy	197.6
Air Force	1,428.7
Marine Corps	395.1
Total	4,804.2

Question. What additional costs are required to complete the TRI–TAC program?

Answer. The following funding profile reflects the current requirements for the Services through 1994. It should be noted however, that the Army has reduced the FY 1989 to 1994 program from $1.5 billion to $184 million. ———.

Question. Identify for the record all the direct and indirect funding associated with TRI–TAC.

Answer. The following funding profile reflects the total funding for the TRI–TAC program from 1970 through the current March 1989 FYDP:

TRI–TAC PROGRAM

[Service appropriation in millions of dollars]

	Total	DOD Comp	RDT&E	Proc	Mil Con	O&M	Mil Pers
1970	11.0		4.6	6.4			
1971	10.4		10.4				
1972	7.9		7.4				0.5
1973	19.4		18.4				1.0
1974	32.8		31.8				1.0
1975	59.5		58.4				1.1
1976	100.6		92.5	6.9			1.2
1977	151.8		119.3	30.7			1.8
1978	116.0		114.0				2.0
1979	105.6		101.9				3.7
1980	152.9		103.9	43.6			5.4
1981	260.8		76.3	178.9			5.6
1982	353.5		93.7	253.5			6.3
1983	590.9		106.1	478.1			6.7
1984	535.3		109.5	417.8			8.0
1985	492.1		74.2	408.3		0.3	9.3
1986	821.5		44.8	769.2		.2	7.3
1987	444.2		30.0	407.0		.2	7.0

TRI-TAC PROGRAM—Continued

[Service appropriation in millions of dollars]

	Total	DOD Comp	RDT&E	Proc	Mil Con	O&M	Mil Pers
1988	459.4		22.1	433.6		3.1	.6
1989	446.7		20.7	425.7			.3
1990	254.7		4.1	250.0		.3	.3
1991	237.4		6.7	229.8		.6	.3
Deleted	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Total	6090.0		1272.3	4742.4		4.7	70.6

Source: DOD FYDP—May 1988 Historical; March 1989 Current FYDP.

Question. Over the past several years that the TRI-TAC system has been under development, several significant changes have been made. The TRI-TAC Office which had over-all responsibility for the program has been disbanded, while the individual Services still manage the development of individual pieces of equipment that comprise the TRI-TAC system.

Under the current arrangement, where is the focal point for assuring that TRI-TAC truly remains a joint program and that its parts are interoperable?

Answer. The focal point for insuring TRI-TAC and other programs are fielded with maximum interoperability is with the Joint Tactical Command and Control Agency (JTC3A). Achieving and maintaining tactical C3I systems compatibility and interoperability requires the coordination of many aspects of tactical C3I programs. The Director, JTC3A, is the Executive Agent for the Tactical C3I Interoperability Improvement Program. This program has been established to provide for annual review, coordination, and resolution of critical tactical C3I interoperability requirements and issues. The Office of the Director, Theater and Tactical C3 is charged with management oversight of the TRI-TAC program and, as such, insures it remains joint and interoperable. This office conducts periodic program reviews and examines TRI-TAC funding requirements identified within the Service budgets.

Question. Please discuss the most significant changes that have been in the evolution of the TRI-TAC configuration as now being fielded in contrast to the system envisioned at the program's inception.

Answer. The main goal of the TRI-TAC program has been maintained since its inception. Interoperable tactical communications equipment across all Services was developed, procurred, and fielded. In some cases requirements changed and funding constraints precluded meeting the objective and desired amounts of equipment to be bought. Some contributing factors for this included changing force structure, new technology, and weapon systems modernization. The core objective has been realized through the fielding of interoperable Tropospheric Radios, Digital Group Multiplexers (DGM), Digital Message and Circuit Switches, COMSEC equipment and numerous terminal devices such as digital telephones, facsimile equipment, and teletype equipment.

WWMCCS ADP MODERNIZATION

Question. What assurances can you give the Committee that the WWMCCS ADP Modernization (WAM) program will not encounter similar problems as the WWMCCS Information System (WIS) program—including cost overruns and no enhanced capabilities to the user?

Answer. Although absolute assurances cannot be provided, the acquisition strategy now being employed for the modernization of WWMCCS ADP has significantly lower risk than the previous WWMCCS Information Systems development program. In lieu of the research and development of unique WWMCCS capabilities, the WWMCCS ADP Modernization program emphasizes integration and implementation strategy which emphasizes the integration of commercial off-the-shelf, non-developmental items, public and government domain capabilities, standard requirements contracts and early incremental fielding of improved capabilities. This strategy will result in the release of enhanced software capabilities to the field approximately every six months beginning in the Fall of 1989.

Question. What criteria necessitates the WWMCCS ADP Modernization (WAM) program being classified as a major acquisition which is subject to Defense Acquisition Board review and approval?

Answer. The previous effort to modernize WWMCCS ADP, the WWMCCS Information System (WIS), exceeded the thresholds to be classified as a major defense system. The restructured WWMCCS ADP Modernization Program is a significantly lower cost, lower risk program than its predecessor, WIS; however, the Deputy Secretary of Defense in the Acquisition Decision Memorandum of March 6, 1989, which terminated WIS and transferred responsibility for the modernization of WWMCCS ADP to the Defense Communications Agency, requested that the restructured WWMCCS ADP Modernization (WAM) program be reviewed by the Defense Acquisition Board in the Fall of 1989. The Defense Acquisition Board, after reviewing the program status and documentation, including the detailed program cost estimates, will then determine the appropriate oversight level for this program.

Question. The February 1988 GAO report on the WWMCCS Information System (WIS) recommended, among other things, that DOD defer new computer system acquisition until processing requirements for the Joint Operations Planning and Execution System are defined and approved. What actions will be taken by DCA to ensure those requirements are evaluated?

Answer. The acquisition strategy being employed by the Defense Communications Agency (DCA) for the WWMCCS ADP Modernization (WAM) program will provide the capabilities required to support the Joint Operational Planning and Execution System (JOPES) by providing frequent incremental software enhancements to the operational sites. The first software release under the WAM program is scheduled for the Fall of 1989 followed by subsequent releases approximately every six months through 1994. In addition, in his March 6, 1989, Acquisition Decision Memorandum on WWMCCS Information System/WWMCCS ADP Modernization, the Deputy Secretary of Defense requested that the Joint Staff complete an updated definition of requirements beyond the initial JOPES releases prior to the review of the WAM program by the Defense Acquisition Board in the Fall of 1989. The Joint Staff has now established the JOPES Review board to specifically focus on requirements for JOPES. This flag level board will be critical to the process and will validate and prioritize requirements to be delivered in support of JOPES under the incremental software development approach being employed by DCA.

Question. Can the current WWMCCS system be enhanced to provide the processing and communications capabilities needed by the DOD for the near future, or will it be necessary to acquire new computers in the near future to satisfy those needs?

Answer. The current Honeywell host computers are expected to remain operational until the mid-1990s. Enhanced WWMCCS capabilities will be incrementally added through the WWMCCS ADP Modernization program. Software enhancements will be provided to the operational sites approximately every six months beginning in the Fall of 1989. Other technical upgrades, such as advanced workstations and enhanced networking capabilities are also being planned as incremental enhancements to the standard WWMCCS ADP and are being planned to operate in conjunction with the primary WWMCCS host computers.

[Clerk's note.—End of questions submitted for the record.]

TUESDAY, MARCH 14, 1989.

ARMY COMMAND, CONTROL AND COMMUNICATIONS

WITNESSES

LT. GEN. BRUCE R. HARRIS, DIRECTOR OF INFORMATION SYSTEMS FOR COMMAND, CONTROL, COMMUNICATIONS AND COMPUTERS

MAJ. GEN. PETER A. KIND, PROGRAM EXECUTIVE OFFICER, COMMAND AND CONTROL SYSTEMS

BRIG. GEN. OTTO GUENTHER, PROGRAM EXECUTIVE OFFICER, COMMUNICATIONS SYSTEM

INTRODUCTION

Mr. MURTHA. The Committee will come to order. The Committee will now hold a hearing on Army programs for Command, Control and Communications.

The total request for the Communications and Electronics portion of the Other Procurement, Army appropriation is $2.2 billion. Additional funds for these Army programs are in other accounts.

This afternoon the committee will discuss the overall request along with issues for several individual programs including Mobile Subscriber Equipment, SINCGARS and the Army Tactical Command and Control System.

Our principal witness at this afternoon's hearing will be Lieutenant General Bruce R. Harris, Director of Information Systems for Command, Control, Communications and Computers. He is accompanied by Major General Peter A. Kind, Program Executive Officer, Command and Control Systems; and Brigadier General Otto Guenther, Program Executive Officer, Communications Systems.

I want to welcome General Harris and his crew here today. General Harris, if you were asked to give an indication today, would you have made more money if you had pursued another career opportunity rather than your present situation?

General HARRIS. Are there more opportunities for me outside?

Mr. MURTHA. I am just thinking, I know you have tremendous responsibilities in your job. I am thinking about the monetary rewards of the basketball world today versus when you were——

General HARRIS. Someone shared some ancient history with you, Mr. Chairman. When I graduated from college, I was a draft choice with the Fort Wayne Pistons, now the Detroit Pistons, and the basic salary was $5,000 a year. I probably wouldn't have lasted long enough to make the huge salary that they are making today.

Mr. MURTHA. You did pretty well in the Army. Since this is your first appearance before the committee, your prepared statement and biography will appear in the record. If you will summarize for us and then we will ask you some questions.

SUMMARY STATEMENT OF GENERAL HARRIS

General HARRIS. I am Lieutenant General Bruce Harris, the Director of Information Systems for Command, Control, Communications and Computers in the Department of the Army.

With me are Major General Peter Kind, the Program Executive Officer for Command and Control Systems, and Brigadier General Otto Guenther, the Program Executive Officer for Communications Systems. We appreciate the opportunity to be with you today and talk about our programs.

As reported last year, we have continued our efforts to develop and to field those systems which offer the greatest combat multiplier to our war-fighting capabilities, particularly those that impact on our soldiers and commanders in the forward area.

We have continued to develop and maintain those programs as well as those that the CINCs have expressed as being their most critical war requirements. Dr. Smith outlined some of those.

While we have made some progress; there is yet a great deal of work to be done. In the tactical area especially, our modernization effort is replacing equipment that has been in the field far beyond its normal life expectancy.

For example, SINCGARS is replacing a radio first fielded in 1959. During the intervening 30 years, the Army has had three generations of tanks, but we have retained the same radio.

In my view, the SINCGARS radio is as important to our units at brigade and below, as any communications system that we may be given across the Army.

The Mobile Subscriber Equipment—MSE—is also replacing equipment of a similar age, and we are introducing new capabilities, such as the Army Data Distribution System—ADDS—and our various command and control systems to the battlefield.

The Army Data Distribution System, ADDS, will not only meet our needs for the movement of data into Forward Area Air Defense Command and Control, into the Advanced Field Artillery Tactical Data System, and eventually in the All-Source Analysis System—ASAS—but it will also introduce a whole new dimension in the arena of position location and reporting.

My view is that the system, the Enhanced Position Locating Reporting System—EPLRS— is potentially the most powerful command and control tool that we will introduce to the tactical Army.

The introduction of this new technology has also brought about a major reduction in the numbers of signal soldiers required on the battlefield as we have made a shift to more user-owned and operated equipment. It is essential that the modernization of our command and control systems continue if we are to support the current doctrine of the AirLand Battle and to keep pace with the intensity of the modern battlefield.

Maintaining the proper synchronization between weapons and command and control and communication systems is extremely important and is one of my major concerns. By synchronization, I refer to the fact that the efficient and effective use of many of our new weapons, the functional command and control systems such as FAADC2 and AFATDS, and the communications systems such as MSE and JTIDS, are directly related. Our fielding plans for these command and control systems reflect such considerations, for without either the command and control system or the communications part, the other two are not optimized.

Any perturbations in the synchronization of fielding flow will rupture the combat capabilities being generated. We must also balance the tactical, strategic, and sustaining systems if the Army is to operate effectively in warfare, participate in joint operations, and ensure proper training, administration, and logistics support in the sustaining base.

Adjustments in funding have already been made Army-wide. If you review our programs, you will see reductions in many of them. Many of the cuts were deeper than I personally would like to have seen, but they were made in conjunction with overall Army priorities and represent some very difficult decisions by the Army leadership.

Adjustments in fielding schedules for our C3 systems have already been made as part of these decisions, but further cuts in the programs will not only place at risk the balance of synchronization required between many of them, but will no doubt result in higher costs as well.

In summary, as we have reduced our C3 program, the Army has held steadfast to two goals: First, to maintain our commitment to the soliders and commanders on the battlefield; and second, to maintain program synchronization and balance.

To achieve these goals, we need your continued support, for, as you know, resource stability is the key to effective management. It allows us to meet program costs, fielding schedules and maintain synchronization that is critical.

We are ready to take any questions you may have, sir.

[The biographical sketches of General Kind, General Guenther and statement of General Harris follow:]

Biography of Major General Peter A. Kind

Major General Peter A. Kind is a native of Wisconsin. Upon completion of studies at the University of Wisconsin in 1961, he was commissioned a Second Lieutenant and awarded a Bachelor of Science degree in Economics; he also holds a Master of Business Administration from Harvard University. His military education includes the Basic Officer Course at the Signal School, the Communications Officer Course offered at the US Marine Corps Amphibious Warfare School, the US Army Command and General Staff College and the US Army War College.

He was assigned to the 97th Signal Battalion (Army) and the 10th Special Forces Group (Airborne) in Germany and as Signal Advisor to the 21st Infantry Division (Air Assault) in Vietnam. He served as the Director of Services at Tobyhanna Army Depot, Pennsylvania and as Chief of Stock Control at the US Army Depot, Cam Rahn Bay, Vietnam.

Following duty as Assistant Divisional Signal Officer of the 82d Airborne Division and as Executive Officer and S2/S3 (Intelligence/Operations and Training) for the 82nd Signal Battalion, Ft Bragg, North Carolina, he served in the War Plans Division, Strategy, Plans and Policy Directorate, Office of the Deputy Chief of Staff for Operations and Plans, Headquarters, Department of the Army. He commanded the 1st Cavalry Division's 13th Signal Battalion, Ft Hood, Texas and studied at the Logistics Management Center's School of Management Science. General Kind then served as Chief of the Concepts and Studies Division, Directorate of Combat Developments at the Signal Center prior to Army War College attendance.

He then served as Commander of the 1st Signal Brigade with concurrent duty as the Assistant Chief of Staff, J6, US Forces in Korea and G-6, Eighth US Army; as Director of Combat Developments and as Deputy Commanding General and Assistant Commandant, US Army Signal Center and School, Fort Gordon, Georgia. He served as Deputy Controller of th NATO Integrated Communications System Central Operating Authority, NATO's equivalent to the US Defense Communications System, headquartered at SHAPE, Belgium, prior to his appointment as Program Executive Officer, Command and Control Systems.

General Kind has been awarded the Legion of Merit, the Bronze Star Medal (with two Oak Leaf Clusters), the Meritorious Service Medal (with two Oak Leaf Clusters), and the Air Medal with two devices, the Army Commendation Medal, the Senior Parachutist Badge and the Army General Staff Identification Badge.

He is married to the former Sandra L. Hanson. They have a son, Lee.

Biography of Brigadier General Otto J. Guenther

Brigadier General Otto John Guenther was born in Long Branch, New Jersey. Upon completion of Reserve Officers Training Corps curriculum and graduation from Western Maryland College in 1963, he was commissioned a Second Lieutenant in the Signal Corps. In addition to Lieutenant in the Signal Corps. In addition to his Bachelor of Arts degree in Economics, General Guenther holds a Master of Science in Procurement/Contract Management from the Florida Institute of Technology.

His military education includes the Signal Officer Basic Course, the Infantry Officer Associate Advanced Course, Command General Staff College, the Army War College and the Program Managers Course at the Defense Systems Management College.

Immediately prior to his assignment as the Program Executive Officer, General Guenther served as the Program Manager for Position Location and Reporting System/Tactical Information and Distribution System (PLRS/TIDS), Fort Monmouth, New Jersey.

General Guenther's career began as a platoon leader in Korea. Following that tour, he was assigned to Fort Ritchie, Maryland, where he served two years as a Technical Control Officer, Detachment Commander and Company Commander. From there he served in Alaska as an Evaluation and Systems Implementation Officer with the Defense Communications Agency. His next assignment was in Vietnam with the United States Army, Vietnam, G4. Returning to the US, he was the Assistant Division Signal Officer and Signal Battalion Executive Office for the 1st Division, Fort Riley, Kansas.

Next, he served as a personnel Actions and Professional Development Officer at the Military Personnel Center in Washington, DC. He then commanded the 102nd Signal Battalion in Germany, followed by a tour as Division Chief and Telecom Division Chief, Deputy Chief of Staff, Operations, 5th Signal Command in Worms, Germany.

General Guenther's acquisition experience includes assignments at the Defense Contract Administration Services Region, San Francisco. He was an Assistant Division Chief of Contracts in the Region and later Commander of Defense Contract Administration Services Office, Food Machinery Company. He served as the Division Chief of Procurement and Production Direction, Communications-Electronics Command, Fort Monmouth, New Jersey. In 1983 General Guenther assumed command of Defense Contract Administration Services Region, New York, where he was responsible for the administration of contracts worth more than $15 billion. In 1985 he became the Director of the Defense Acquisition Regulation (DAR) System and Director of the DAR Council.

His awards and decorations include the Defense Superior Service Medal (with Oak Leaf Cluster), the Bronze Star Medal (with Oak Leaf Cluster), the Meritorious Service Medal (with four Oak Leaf Clusters), the Joint Service Commendation Medal, the Army Commendation Medal (with Oak Leaf Cluster), and the Secretary of Defense Identification Badge.

General Guenther is married to the former Jan Peterson and they have two daughters, Debra and Tracey.

BIOGRAPHY
of
Bruce R. Harris
Lieutenant General

Lieutenant General Bruce R. Harris was born in Sullivan County, Indiana on 13 August 1934. Upon completion of the Reserve Officers Training Corps curriculum and the educational course of study at Tennessee Technological University in 1956, he was commissioned a second lieutenant and awarded a Bachelor of Science degree in Business. He also holds a Master of Science degree in Political Science from Auburn University. His military education includes completion of the Signal Officer Basic and Advanced Courses, the United States Army Command and General Staff College, and the Air War College.

He has held a wide variety of command and staff positions culminating in his current assignment as Director of Information Systems for C4, Office Secretary of the Army. These include command of the 13th Signal Battalion, 1st Cavalry Division; command of the Division Support Command, 2d Armored Division; Chief of Staff and later Deputy Commandant of the US Army Signal School; Deputy Assistant Secretary of Defense for Legislative Affairs; Assistant Division Commander, 9th Infantry Division; command of the US Army Communications Systems Agency and the US Army Communications Electronics Engineering Installation Agency; Deputy Commander, US Army Information systems Command; and command of the US Army Signal School.

Awards and decorations which General Harris has received include the Distinguished Service Medal, Legion of Merit, the Bronze Star Medal, the Meritorious Service Medal (with Oak Leaf Cluster), several Air Medals and the Army Commendation Medal. He also wears the Parachutist Badge and the Master Army Aviator Badge.

He is married to the former Claudia Alley and they have four children: Bruce, Jr., Mary Kathryn Brooks, Tim, and Brad.

Statement by Lieutenant General Bruce R. Harris

Mr. Chairman and Members of the Committee: I am LTG Harris, the Director of Information Systems for Command, Control, Communications and Computers. I appreciate the opportunity to talk with you about the Army's Command, Control, and Communications Budget Request for fiscal years 1990/91.

The Army is only beginning to reap the benefits of modernizing communications electronics equipment and those benefits are direct improvements to the C3 capabilities of the battlefield commanders and their staffs. However, there is much work yet to be done in this area for the full implementation of the Army's AirLand Battle Doctrine. The tenets of this doctrine, initiative, agility, synchronization, and depth, require the battlefield commander to have capabilities which will allow him to "see" the entire battlefield, to quickly assess opposing forces, to bring combat firepower to bear on the critical portion of the battlefield and to strike deep in order to defeat any enemy force on the battlefield. Our current modernization efforts to provide responsive and survivable communications and battlefield automation are critical to the battlefield commanders in their application of combat power.

The Communications and Electronics portion of the Other Procurement, Army, Budget Activity 2, (OPA-2) request in fiscal year 1990 is $2.2 billion, which declines to $1.8 billion in fiscal year 1991. The Communications and Electronics equipment may be divided into Command, Control and Communications (C3) and Reconnaissance, Intelligence, Surveillance, Target Acquisition and Electronic Warfare (RISTA/EW). I will address the C3 portion of OPA-2 (see figure 1). As in the past several years, the fiscal year 1990 budget request represents a reduction in the procurement accounts, particularly in OPA.

The $2.2 billion for FY90 is a slight reduction from our FY89 budget request; FY91 sees most programs remaining stable. The major decrease is due to a smaller request for the final contract option for MSE. Declining resources have forced the Army to look very closely at this year's budget request and to make very difficult decisions on what programs offer the most warfighting capabilities to the Army.

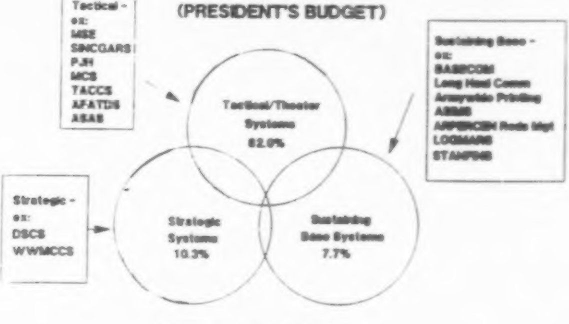
COMMAND, CONTROL, COMMUNICATIONS, AND COMPUTERS
MAJOR PROGRAMS
% OF TOTAL PROCUREMENT — FY90

	OPA $ (M)	%
MSE	984.7	45.3
SINCGARS	315.7	14.5
ASAS	71.4	3.3
DSCS	68.5	3.2
STRATEGIC C3	59.9	2.8
ADDS (EPLRS, JTIDS)	48.8	2.3
SCOTT	38.8	1.8
COMSEC	38.1	1.7
HQ AUTOMATION	36.7	1.7
AWIS	31.9	1.5
NAVSTAR GPS	27.0	1.2
SOF COMMUNICATIONS	26.5	1.2
TACCS	24.9	1.1
TOTAL MAJOR PROGRAMS	1772.7	81.6
TOTAL IMA PROCUREMENT	2171.9	100%

Figure 1

This request covers 104 different budget lines and represents procurement activity supporting three broadly defined information mission area environments; Tactical, Strategic and Sustaining Base Communications, Electronics and Automation programs (see figure 2). The majority of the procurement effort is in the tactical arena, equipment assigned to the warfighting commands. In the strategic arena, the effort is focused on dedicated and survivable global communications networks and equipment needed by the CINCs to execute the commands of the National Command Authorities (NCA). All of these strategic requirements are validated by the Joint Staff. The third area is the support to the sustaining base which contributes directly to our peacetime operational readiness, mobilization and wartime sustaining capabilities. Adequate and balanced support to this environment is necessary for the Army to operate on a day-to-day basis by sustaining operational readiness, providing quality training, maintaining records, offering audiovisual and library services, service telecommunications assets, and providing printing, publications, and automation capabilities.

THE ARMY INFORMATION MISSION AREA
FY 90 OPA
(PRESIDENT'S BUDGET)



ACTIVE AND RESERVE

Figure 2

Tactical Communications and Automation Equipment

Our major investment objective will be the acquisition of new tactical C3 equipment to modernize our Army and replace the obsolete, 25 year old, costly-to-maintain, and easy-to-defeat equipment in the field today. Approximately 80 percent of our total FY90 procurement funds, more than 1.7 billion dollars, will be spent primarily on Army tactical command and control programs and the principal communications means that support division and Corps warfighting operations.

Tactical Communications Equipment

The combat Single Channel Ground and Airborne Radio Systems (SINCGARS) and Mobile Subscriber Equipment (MSE) in the Army's tactical and area communications programs are major contributors to synchronizing operations from squad level to the Corps. The Army Data Distribution System (ADDS), consisting of the Enhanced Position and Location Reporting System (EPLRS) and the Joint Tactical Information Distribution System (JTIDS), will ensure the transfer of high priority data necessary to interface the battlefield automation systems. These three programs (MSE, SINCGARS, and ADDS) are all under development by the Program Executive Officer (PEO) for Communications Systems.

Mobile Subscriber Equipment (MSE)

Mobile Subscriber Equipment (MSE), at a total cost of $4.6 billion, is the largest, most successful non-developmental item (NDI) acquisition program in the Army and has been funded in FY90 at $984.7 million and at $345.6 million in FY91. The request in FY91 completes the buyout of this NDI program. MSE is the Army's backbone corps and division area communications system and provides the tactical commander with a secure, automatic, mobile and survivable cellular telephone system capable of passing data, facsimile, and voice traffic throughout the corps area of operation. It allows the commander and his staff the ability to communicate while in a static location or on the move. When fully fielded, the system will outfit 5 Corps sets, 28 Divisions (both active and reserve components), 15 Area Battalion sets, plus two training sets.

MSE will dramatically change the way we fight by providing a degree of mobility unprecedented in modern warfare, reducing signal force structure via user operated communications means, providing writer to reader facsimile and numerous other technical innovations. I am completely satisfied that our current acquisition strategy to procure the MSE program in under six years through a firm-fixed price contract is the right thing to do. Its ability to facilitate sweeping improvements in the way we fight the AirLand Battle, to provide both the active and reserve components with the same communications equipment, and the rapid elimination of the current wire heavy, manpower intensive communications systems represent dramatic, though difficult-to-quantify, force multipliers.

I am also pleased to report:

- o The successful completion of the MSE Follow-on Test and Evaluation (FOTE) at Ft Hood, Texas in November 1988. The system was certified to be operationally suitable and effective and a significant improvement over the current fielded Corps and division level communications capability.
- o The program is on schedule and the fourth option was awarded on March 9, 1989.
- o FY90 funds will allow the Army to exercise option five of the MSE contract and provide MSE equipment to the XVIII and I Corps.

Single Channel Ground and Airborne Radio Systems (SINCGARS)

SINCGARS, our Combat Net Radio, replaces the obsolete AN/VRC 12 family of radios. SINCGARS is a family of very high frequency (VHF) /frequency modulated (FM) secure, jam resistant radios which provide voice and data command and control communications to the brigade, division and corps, for both ground and air forces. (See figure 3)

COMBAT NET RADIO

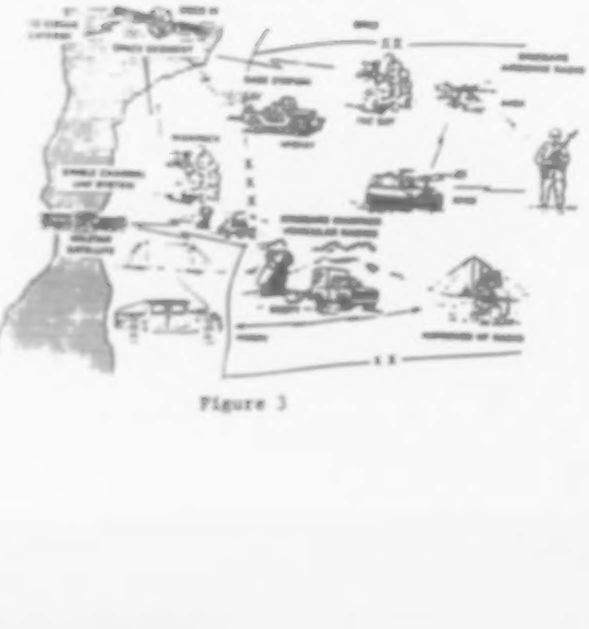


Figure 3

SINCGARS was troubled with reliability problems in 1985, but has now turned into a success story. The manufacturer's corporate commitment to an aggressive test, analyze, and fix program has produced a radio that today is achieving well over the contractual 1,250 hours mean time between operational failure (MTBF) on the DMZ in Korea; our most recent reports place the MTBF in excess of 3,000 hours. Additionally, SINCGARS radios have clearly demonstrated their value in command and control interoperability between services. The Marine Corps, as directed by the Congress, has committed approximately $29 million for an initial purchase of 2,300 SINCGARS radios in FY89.

A second source form, fit, and function award was made on 15 July 1988 and a head-to-head competitive production phase is scheduled for fiscal year 1993.

Implementing the second source SINCGARS acquisition strategy provides the Army several major advantages in Cost, Mobilization, and Readiness.

- o **Cost** - Two sources mean both improved technology and cost competition. As a result of second source price competition and the ancillary technological competition will lower life cycle costs.
- o **Mobilization** - The availability of secure, jam resistant radios to all committed Army forces is the key to achieving success in any future conflict. Two sources of SINCGARS are absolutely essential to meet surge production requirements anticipated to support mobilization.
- o **Readiness** - With this second source, US Army Europe will be able to accelerate their fielding schedule by one year, from FY94 to FY93. The $315.7 million request in FY90 will procure 15,900 radios, both ground and airborne versions. This will be awarded as the fourth option to ITT and will be used to buy only the Integrated COMSEC (ICOM) SINCGARS radio.

The Battlefield Electronic CEOI System (BECS) is an integral part of the SINCGARS program. This system is necessary to provide paperless Communications Electronics Operating Instructions (CEOI). BECS will meet the critical requirement for a decentralized and automated process to generate both single channel and frequency hopping instructions in order to more efficiently manage battlefield frequencies. The FY90 request of $33.2 million supports the capability to load COMSEC keys and frequency hopping instructions for SINCGARS and other radio systems.

Army Data Distribution System (ADDS)

The third major communications system under development is the Army Data Distribution System (ADDS). This system provides a totally new and unique capability for Army Command and Control Communi- cations. ADDS consists of EPLRS and JTIDS which are state of the art, frequency-hopping, secure, and anti-jam radios optimized for near real-time data distribution. Without this capability, key elements of the Army Tactical Command and Control System (ATCCS) will not operate effectively, and the full capabilities of computers on the battlefield will not be realized. In particular, the Forward Area Air Defense Command and Control System cannot operate without ADDS.

The first radio is an enhancement to the Army and Marine Corps position location reporting system called PLRS. The enhanced PLRS, or EPLRS, provides low volume data distribution in addition to the relative position, navigation, identification, and reporting functions of the basic PLRS. The EPLRS consists of manpack/vehicle and airborne units and can interface with each other through the Net Control Station (NCS). It is currently undergoing technical testing and the third phase of the low rate initial production contract will be awarded this year to produce equipment for operational testing. The first unit set will be fielded in FY92.

The second component of the Army Data Distribution System is the ground component of the Joint Tactical Information Distribution System, or JTIDS. The Army's version of this terminal supports Air Defense Command and Control requirements for high volume data distribution and the need for NATO and Inter-Service interoperability. The terminal is currently being integrated into forward area air defense command and control shelters. JTIDS will complete its operational testing by FY91 and will be fielded as part of our air defense system in FY93.

The FY90 $48.8 million is for the EPLRS low rate initial production while the FY91 $223.3 million will initiate full scale production. The Army JTIDS radios will not be in production until after testing in FY91.

Echelons Above Corps (EAC) Communications Upgrade (formerly TRITAC)

The TRITAC program was significantly downsized during the preparation of the FY 90/91 budget request. These funds ($22.1 million in FY90 and $24.9 million in FY91) will be used to achieve minimum interoperability between the Corps equipped with MSE and the theater level forces in Europe. This capability will replace 25 year old manual switching equipment and eliminate the mix of technologies now prevalent on the EAC portion of the European theater. The Army is reevaluating proposals for the architecture of the EAC Communications Upgrades for the remainder of the Army.

I cannot emphasize strongly enough that with your continued support, the Army will be able to rapidly field the most effective tactical C3 communications systems ever conceived and in the process achieve a quantum improvement in our combat capability.

Army Tactical Command and Control System (ATCCS)

I have discussed the major communications systems, MSE, SINCGARS, and ADDS, that are the carriers of voice and data information. I will now address the five battlefield automated systems that comprise the Army Tactical Command and Control System (ATCCS).

The Army Tactical Command and Control System, ATCCS, is a composite of five battlefield functional control systems, the three primary communications systems described above, and the common hardware/software support package. These functional systems -- Maneuver Control System (MCS), the Advanced Field Artillery Tactical Data System (AFATDS), All Source Analysis System (ASAS), Forward Area Air Defense Command and Control (FAAD C2), and Combat Service Support Control System (CSSCS) -- are the key elements of ATCCS. These control elements were established within each battlefield functional area to manage, coordinate, and process internal information while coordinating data flow with other control nodes. An important requirement of ATCCS is not only to process information between the nodal systems but also to interface with the various weapons and sensor systems at each node to direct activities or extract needed information for use in command and control. Therefore, it is important that you view all of this as a system of systems, fully integrated, rather than a loose collection of programs. Overlaying on all nodes of this architecture is our common hardware/software program, called CHS, which I will discuss as a final element in this ATCCS review. (See Figure 4)

ARMY TACTICAL COMMAND AND CONTROL SYSTEM

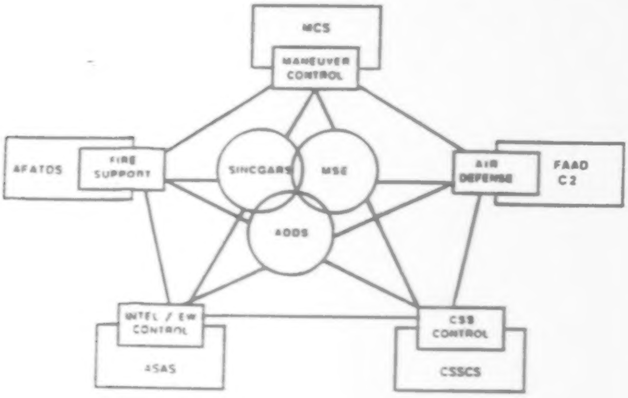

MCS
MANEUVER CONTROL
AFATDS
FIRE SUPPORT
SINCGARS
MSE
ADDS
AIR DEFENSE
FAAD C2
INTEL / EW CONTROL
ASAS
CSS CONTROL
CSSCS

Figure 4

ARMY TACTICAL COMMAND AND CONTROL SYSTEM FIELDING SCHEDULE

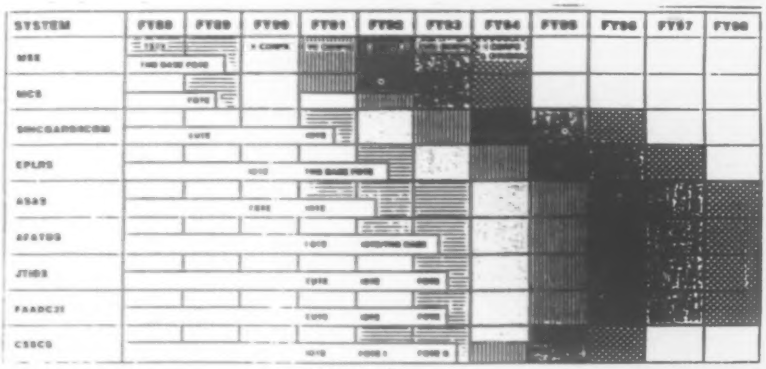


Figure 5

This illustrates the projected time-phased deployment of each ATCCS program. As you look left to right you'll first note the sequence of testing and evaluation that culminates in the total system tactical validation, or TSTV, and the aggressive schedule of field deployments. The critical challenges posed by this deployment schedule become readily apparent from the display. First, 4 of the 8 systems will be fielded simultaneously in each corps. Second, continuing to synchronize the fielding of each system, to maintain this orderly deployment schedule, will remain an important task for the Army into the 21st century.

Maneuver Control System (MCS)

The first of the five battlefield Command and Control (C2) automation systems I will discuss, is the Maneuver Control System (MCS). Because of the increased pace on the modern battlefield and the need to work inside the enemy's decision cycle, the manual control of maneuver forces and their fire and logistical support is no longer possible. MCS will overcome this deficiency by providing automated support to maneuver commanders and their battle staffs from Corps through Battalion level on the status of unit and equipment readiness, as well as other operational data. It provides accurate and timely text, graphics information and operational tools, and will be able to edit, compose and validate messages or orders using computer assisted information processing.

A hybrid system, MCS consists of both military specification (MIL SPEC) equipment and ruggedized commercial or NDI hardware. The MIL SPEC equipment will be employed at key command posts where the enemy threat is greatest. The NDI hardware, on the other hand, will be used to provide an increasingly automated capability for staff officers at Corps, Division and Brigade levels. MCS software is written in Ada to facilitate interoperability with other nodes as they are developed and fielded, improve real time processing, and provide modularity for software growth. In order to use the information processed by MCS, the commander and staff will get usable output either by viewing the display screen or by printing the data. To accomplish this, MCS will incorporate a printer/ plotter device capable of producing map overlays to scale.

It is currently being fielded to III Corps at Ft Hood, Texas, with deployment to our remaining units scheduled to continue through fiscal year 1994. A MCS follow-on has been developed which will begin testing in August of this year. Specific software improvements are planned in 1994 to bring MCS to its full potential.

The FY90 request for $13.9 million is for the development of Segment II software, systems integration and engineering, and the transition to Common Hardware/Software.

Advanced Field Artillery Tactical Data System (AFATDS)

A second component of the ATCCS is the Advanced Field Artillery Tactical Data System (AFATDS). It is scheduled to replace and expand current fire support control capabilities in order to provide the commander control of field artillery weapons systems and other fire support assets such as tactical air, naval gunfire, mortars, attack helicopters, air defense systems, and tanks. AFATDS will also provide nuclear, non-nuclear, and chemical fire planning, as well as coordinated Field Artillery unit movement control. The AFATDS software provides a distributed, survivable processing and database capability at all command and control nodes from Corps headquarters down to a more limited capability for the field artillery forward observer.

AFATDS technology is designed to overcome the size, limited functionality, central processing and training limitations of the current artillery unit fire control system. AFATDS takes advantage of emerging software, graphics, decision aids, artificial intelligence and embedded training to expand the needed fire support functions now wholly or partially automated.

The AFATDS software has passed the formal qualification test at the contractor facility and is prepared to continue into Concept Evaluation at Ft Sill, Oklahoma this month. This system is scheduled to begin deployment in fiscal year 1992.

The FY90 request of $7.4 million will commence the upgrade and conversion of existing Battery Computer System software to the DOD standard Ada language. FY91 will see the completion of this effort, as well as beginning the initial fielding to the training base at Ft Sill.

All Source Analysis System (ASAS)

The All Source Analysis System (ASAS) is another component of ATCCS. ASAS is being developed jointly with the Air Force Enemy Situation Correlation Element (ENSCE). ASAS/ENSCE fills a critical void, ensuring time sensitive and accurate intelligence for Army and Air Force operations. In addition, a common Army/Air Force view of the battlefield will allow commanders to work together more effectively. The vast amounts of combat information and intelligence collected by strategic and tactical sources demand that the processing, correlation and fusion be accomplished with automation.

Providing the commander with timely and useful intelligence on terrain, weather, and the enemy situation is a vital command and control task. The key aspect of the Intelligence and Electronic Warfare (IEW) challenge is to find the enemy's movers, shooters, emitters, and command and control facilities. This supports the need to see deep, detect, locate, and identify these targets in a very dense environment. The tactical IEW architecture will support decision making through the rapid processing of large volumes of combat data from all intelligence sources and by providing timely targeting information and threat assessments.

ASAS will use a number of highly specialized modules in support of a portable workstation consisting of a dedicated processor, a graphics generator, two high resolution color monitors and a removable hard disk. To field this system incrementally, the Army has developed a limited configuration capability, or LCC, which will be delivered to Ft Hood, Texas for initial testing this month. A software upgrade of this LCC is due to be completed in FY90 and operational tests should be completed in FY91. Initial deployment of ASAS is now scheduled for 3D Qtr, FY92. Following that, ASAS will grow to a complete system through pre-planned production improvements and software refinements based on direct user feedback.

Forward Area Air Defense Command and Control (FAADC2)

Currently, command and control for the Air Defense forces at division and corps level consists exclusively of a manual voice net for alerting weapons systems and an obsolescent radar for air surveillance. Consequently, the total air defense system is under renovation in a series of programs being implemented by the Army. The Air Defense command and control portion of that renovation project will provide a command and control system to effectively support the sophisticated configuration of new air defense weapons.

FAADC2 is designed to provide automated decision support alert processing and dissemination of air tracking and identification data to all firing units. The system will also provide air defense early warning data to other units in the rear area through its JTIDS link to the high to medium air defense system which will operate at both Corps and theater levels.

This equipment is intended to link both our current and future weapon systems into an integrated network that is fully capable of supporting and protecting the Army in the field.

Effective fielding of FAADC2 requires the synchronized development of radar sensor units, identification devices, near real-time communication systems and a sophisticated command and control software processor. The first FAADC2 system is expected to be delivered in February 1991. Operational testing will then continue through FY92 and fielding to our first unit is scheduled for FY93.

Combat Service Support Control System (CSSCS)

The last of the five battlefield automation systems is the Combat Service Support Control System, or CSSCS. It is being developed to satisfy the Army's need for an automated system to collect, process and summarize logistical information presently distributed among subordinate supply, maintenance, ammunition, transportation, personnel, finance and medical systems. Processed information will be available for rapid dissemination from battalion to theater level to aid in the commanders decision-making process.

Although the Initial Operational Capability for CSSCS will not be achieved until 1993, many efforts are underway now to ensure that the system meets all the necessary requirements. In December 1988 a very successful initial demonstration of the system was conducted at the ATCCS experimentation site at Ft Lewis, Washington.

Common Hardware/Software

The Army Tactical Command and Control System is a unified effort under the direction of the PEO for Command and Control Systems. Efforts are underway to standardize automation equipment and common software for as much of the five battlefield automation systems as possible.

One of the major, but least understood thrusts of ATCCS is to promote the use of commercial hardware and software in our systems. The application of commercial equipment and software that has already been proven in the marketplace will save money and accelerate the fielding of our systems with state-of-the-art technology. Conversely, if the development of separate systems for each node of ATCCS were allowed to proceed, we could end up with widely dissimilar and incompatible hardware and software, as well as significantly higher life cycle costs.

A common hardware approach, with a significant amount of common software, will form the basis for a system which ensures that a commander can position himself at any of the numerous nodes on the battlefield and still be able to command and direct his forces. It is the decentralized and distributed nature of the system that provides the required tactical capability inherent in ATCCS. This approach supports interoperability, interchangeability, continuity of operations, and significantly enhanced logistics support.

Through our common hardware/software program we will procure commercial hardware in 3 versions: handheld terminal units, portable computer units and the more powerful transportable units. Each of these configurations is ruggedized to withstand the battlefield environment. Funds for common hardware are contained in the five ATCCS programs.

Special Operations Forces (SOF) Communications

The Special Operations Forces (SOF) Communications has received special attention over the past two years, particularly from the House and Senate Appropriations Committees. The $108 million appropriated in the FY89 DOD Appropriation Act is being used to speed up the procurement of the unique communications equipment required to support the SOF missions. The communications systems that support the SOF missions must be hard to intercept and difficult to detect. They must be available in a lightweight, manportable and secure package that is highly reliable. The FY90/91 requests of $26.5 million and $47.8 million for SOF communications support procurement of several communications systems. Among the systems being procured are PLASTERWORK, Lightweight Deployable Communications (LDC) and Special Operations HF Multichannel Radio Systems (SOHFMRS).

Tactical Army CSS Computer System (TACCS)

The Tactical Army Combat Service Support Center (TACCS) is a ruggedized, transportable, user friendly, NDI microcomputer system. It will be used in garrison and on the battlefield for the Combat Service Support (CSS) missions of personnel, supply, maintenance, medical, ammunition and transportation. The system will be fielded at various levels of command. It will interface with other TACCS systems, divisional and Corps systems via military and commercial communications circuits.

The FY90 request for $24.9 million procures 1673 systems and the FY91 request for $21.6 million procures 1751. In January 1989 the option year 3 contract, in the amount of $23.5 million, was awarded to UNISYS.

The TACCS devices are being fielded to the Active Component (50%) and the Reserve Component (50%) in FY88 and 89 to meet Congressional direction. To date approximately 8.300 TACCS have been fielded worldwide; 3,268 were fielded in FY88 and 1,743 are scheduled for FY89. This system has been well received by the user community; it has improved the users accuracy, timeliness, handling and transmission of administrative/logistical/medical data as compared to the current manual systems.

Corps/Theater ADP Service Center, Phase II (CTASC II)

The CTASC-II is a general purpose minicomputer based system designed to provide information processing support for logistical, personnel, and medical Combat Service Support (CSS) applications at Corps and Echelons Above Corps (EAC) levels. The CTASC-II will process a variety of Standard Army Management Information Systems (STAMISs) to include logistic, personnel and medical applications. The CTASC-II provides a mobile, survivable, and transportable ADP service center for tactical CSS units. This system will tie into the division level TACCS computer systems. CTASC-II represents improved information processing and storage capabilities, tactical deployment, and lower manpower requirements than existing CTASC-I and DAS3 systems.

The FY90 request of $17.7 million will procure 15 systems and the FY91 request, $23.5 million, will procure 21 systems.

NAVSTAR Global Positioning System (GPS)

The NAVSTAR Global Positioning System (GPS) is a joint program in which the Army is responsible for developing user equipment for manpack, vehicular, and helicopter applications. This systems provides increased combat effectiveness by providing the user a passive means of navigating and knowing his location. This will allow fighting forces to position themselves in darkness without maps, radio communications, or other tools. GPS also provides velocity and time information, is anti-jam and will operate under adverse weather, 24 hours a day on a world-wide basis. When survey data is not available, as on a highly mobile battlefield, GPS will provide information to base and relay stations to establish positioning grids; the system will determine the position of a user in three dimensions to horizontal accuracy of 10 meters for stationary users and 50 meters for moving users. By the mid-1990's, GPS will be the primary means of navigation for both military and civil aircraft. We currently plan to deploy GPS to all types of units.

The FY90 request for the NAVSTAR GPS User Equipment of $27.0 million, and the FY91 request of $328 million, and begins procurement of the major buy of Army user equipment.

Single Channel Objective Tactical Terminal (SCOTT)

At the cross-over point between the tactical and strategic systems is the Single Channel Objective Tactical Terminal (SCOTT).

SCOTT is the joint, highly mobile, MILSTAR satellite ground terminal which satisfies the critical need for a highly reliable, long-range, survivable and enduring, secure tactical communications system. This system operates in the extremely high frequency band and as a result, is the only anti-jam, nuclear survivable, joint service interoperable ground terminal available to the maneuver forces. Based on SCOTT's current development schedule, operational testing of this terminal will begin in August of this year. Following the successful completion of the full testing cycle, it is expected that a favorable production decision will be obtained in February 1990 and deployment of the first equipment in FY91.

Strategic Communications Programs

The Army's commitment to strategic communications is focused on top priority joint and DOD directed programs such as the Worldwide Military Command and Control System, and the Defense Satellite Communications System (DSCS). As the Executive Agent for the Ground Subsystems of the DSCS program, the Army is responsible for the development, procurement, and life cycle logistics support of satellite terminals, satellite control and other equipment in support of satellite communications worldwide.

Worldwide Military Command and Control Systems (WWMCCS)
Army WWMCCS Information System (AWIS)

The Army's support to the Worldwide Military Command and Control System (WWMCCS) is the Army's WWMCCS Information System (AWIS). AWIS is the Army portion of a joint effort to modernize WWMCCS, which provides strategic command and control data to the national command authorities, unified and specified CINCs and the service headquarters. Due to its different mission, the JCS sponsored WWMCCS is able to support only 20% of the Army's organizing, training, equipping, and sustaining requirements, hence the need for AWIS. Through evolutionary phases, AWIS will enhance and expand the Army's capability by providing automated work stations, local area networks, digital long haul communications and an Ada software development environment. In FY89, the full scale development of this program continues with upgraded software being installed at all Army supported WWMCCS sites. The required hardware improvements will begin in Europe in FY90 and will be phased into the rest of the Army over the foreseeable future.

Defense Satellite Communications System (DSCS)

The Defense Satellite Communications System, DSCS, is a worldwide, strategic and tactical satellite communications program. As a highly secure and survivable operation, DSCS is capable of simultaneously satisfying unique and vital command, control, simultaneously satisfying unique and vital command, control, communications and intelligence requirements. This system was established in 1962 by Congress to ensure that DOD had a capability to extend vital information to remote areas, to respond to emergency/contingency situations or defend national and global interests. Accordingly, DSCS directly supports the President, National Command Authorities, CINCS, JCS, field commanders, Department of State, NATO, and the United Kingdom. Some fourteen new high powered, and nuclear protected DSCS III satellites have been procured by the Air Force to sustain the system until the year 2010. The FY90/DSCS budget requests support building of new control facilities and upgrade worldwide DSCS sites to allow maximum utilization of these new satellites systems. This request also supports critically needed automated operations control, higher reliability, more efficient use of scarce space segment, increased survivability and high anti-jam communications capabilities.

SOUTHCOM Command, Control and Communications (C3) Upgrade

The SOUTHCOM Command, Control and Communications (C3) Upgrade provides expanded state-of-the-art digital communications improvements to the US Southern Command. It includes upgrade of the Command Center at HQ SOUTHCOM, implementation of the Panama Microwave System, and installation of the Central American Regional Communications Network. The Command Center Upgrade provides automated data processing, communications, graphics and voice switches to HQ SOUTHCOM. The Panama Microwave System provides expanded communications throughout Panama, linking Pacific and Atlantic installations. The Central American Regional Communications Network provides a communications backbone in Honduras with expansion to other Central American nations and entry into the Defense Communications System.

This project satisfies four JCS validated Required Operational Capabilities (ROC): 1) SOUTHCOM Regional Voice Network; 2) WWMCCS Communications Support Network; 3) Central American Regional Communications Network, and 4) Command and Control Center Upgrade.

The FY90 request for $13.9 million will procure 12 microwave links which will provide expanded connectivity to the Pacific military community, and an upgrade to the technical control of the system. The FY91 request of $10.9 million will add an additional 7 microwave links to provide connectivity between the Pacific and Atlantic communities. This request will also support construction of five communications towers and enhancements to five additional towers.

Army Sustaining Base and Automation Programs

Approximately 7.7% of the C3 OPA-2 request is for sustaining base programs, including automation and communications designed to fully support day-to-day operations.

CONUS/Telephone Modernization Program (CTMP)

In the base communications arena, the Army's objective is the installation of state-of-the-art digital integrated voice and data switches for Army posts, camps and stations worldwide. An excellent example of this is the ongoing CONUS Telephone Modernization Program (CTMP) which plans the replacement of obsolete equipment with the installation of digital switching and fiber optical upgrades to outside transmission cables. The FY90 request for $18.5 million will be used to procure a voice/data switch and modifications to already fielded equipment. The FY91 request of

$11.2 million will be used to upgrade the telephone switches at Ft Wainwright, Alaska, Ft Richardson, Alaska, Ft Detrick, Maryland and again for expansion options and modifications to existing equipment.

Army Standard Information Management System (ASIMS)

In the area of automation support, one of our most complex and ambitious programs ever undertaken is the Army Standard Information Management System (ASIMS). This program provides the Army with its ADP support for standard business functions such as personnel, logistics, finance, engineering and other management operations. ASIMS includes the operation of hardware and software at regional service centers, and training, maintenance, and communications in support of 61 installations in CONUS and Europe. ASIMS is near or at maximum utilization. ASIMS will have to be upgraded in FY89 in order for the Army to field STANFINS-R and meet commitments to comply with Congressional guidance on financial systems. An action is underway to reprogram funds in FY89 to support the required ASIMS upgrade. The FY90/91 budget requests have been reduced to offset the funds requested in this reprogramming action. This program is now particularly visible because the current service contract ends in FY92. Accordingly, the careful preparation of follow-on competitive contract documentation is underway to plan for a future architecture that appropriately incorporates the latest principles of distributed management, processing and data storage.

Supercomputer

The Supercomputer program has been a great success, offering Army research and development centers with the most advanced computing capabilities possible. Two sites are currently operating Supercomputers; the Ballistic Research Laboratory at Aberdeen Proving Grounds (operating a CRAY-XMP and a CRAY-2), and the Tank Automotive Command at Warren, Michigan (operating a CRAY-2). In third quarter FY89 the Army will award a contract for a Supercomputer to be located at the Waterways Experiment Station (WES) in Vicksburg, Mississippi. This contract complies with the Congressional guidance in the FY89 Joint Appropriation Conference Report. In addition to the Supercomputer for WES, the Army released the Request for Proposal (RFP) for the Army High Performance Computing Research Center on January 17, 1989. This RFP is for a computing center sponsored by the Army at an academic center. This high performance computing center will improve the productivity of Army scientists and engineers by developing algorithms that can more realistically model complex phenomena. The proposals are due in April 1989 and the contract award is scheduled for the fourth quarter fiscal year 1989. The Army has been directed to provide a road map to the Armed Services and Appropriations Committee on the Supercomputer program. This action is being worked now and will be provided to the Committees at least 30 days prior to the award of the Army High Performance Computing Research Center.

Automation Programs

The Sustaining Base portion of the OPA-2 budget request also supports several Army-wide automation initiatives. Some of these programs include Headquarters Automation, Medical Automation, Personnel Automation and Logistics Automation. All of these automation programs support initiatives within each functional area to improve efficiency, increase accuracy, and reduce overhead by providing the latest technology and industry innovations to the daily operations required to support the total Army in peace and war.

Support to CINCs

The Army's emphasis on strategic and tactical C3 programs is an indicator of our commitment to support warfighting CINCs. We have tried, within the constraints of declining resources, to maintain those programs that the CINCs designate as being their most critical warfighting requirements.

For example, CINCSOC has placed communications at the top of his priority list. As I have stated, procurement of SOF Communications items continues in our budget request, and a new RDTE effort will be started in FY 90.

ATCCS will be critical to CINCEUR's Follow-On Forces Attack; ASAS in particular. ASAS is the Army's portion of the Joint Tactical Fusion Program, for which GEN Galvin is on record before the SAC in support, and has consistently made a high priority.

The Army has also invested considerable resources in improving CINC regional C3. One example is SOUTHCOM C3, which is outlined in detail above; another is Southwest Asia Communications Infrastructure. The Army has requested $17.1 million in fiscal year 1990 to upgrade CINCCENT's current capability.

Conclusion

As we have reduced our Communications and Electronics program over the last two years, the Army has had two goals. The first, to maintain our commitment to the battlefield commander. Without the communications and automation programs we have planned, commanders at all levels will not receive the full benefits of our technologically advanced vehicles, weapons and sensors. We give the commander the opportunity to see through the "fog of war"; the capability to fully execute our Airland Battle strategy.

We have also tried to maintain program stability. Resource stability is the key to effective management, high performance, and affordability for the Defense budget as a whole and for programs such as the ATCCS battlefield automation programs and the associated communications systems in particular. Stable funding allows us to meet program cost and schedule goals; careful consideration of our requirements, and the resultant stability, eliminates cost increases in the future.

Communications and Command and Control are clear examples of how the sophistication and pace of our technological progress translate into quality and superior capability; the key to our defense.

Mr. **Murtha**. General Harris.

SINCGARS RADIO

General **Harris**. If I may, at the pleasure of the committee, because some interest was shown in the SINCGARS system, if I may make a couple of remarks on that system now, perhaps it will answer some questions that you may have.

The SINCGARS, as I mentioned, replaced a radio that is 30 years old. It has two major features; frequency hopping, and encryption capabilities.

They are not the same, and we should not confuse them. The SINCGARS radio operates in a frequency band that includes some 2320 channels, and through the means of electronic loading, we can program that radio to hop at several hundred times a second across those different channels.

To the operators at either end, it appears as a single channel radio, because they only hear one channel, but in fact, the radio is moving at a very high rate of speed across the different channels. It gets back to Mr. Miller's earlier question as to, whether the enemy can disrupt communications by jamming one channel.

The answer is, only with great difficulty, because the speed with which the radio hops from one channel to the next. If you keyed on one channel and tried to jam it at that point, the radio would have switched to the next channel before the jamming could impact on the radio itself.

The radio will contain an embedded COMSEC module. The system that we are now fielding in Korea and SOUTHCOM does not have the COMSEC module imbedded. It does have the anti-jam frequency hopping capability. It is compatible with the COMSEC device that we now use on our older versions of the combat ration, so we continue to use that device.

It is another piece of equipment that must be plugged in, however. The money that we have in our 1989 program, and that which we are asking for in 1990, will move us into production of the fully integrated COMSEC radio for the SINCGARS family.

The SINCGARS radio can operate with the old radio that we have in the field, but not in a hopping mode. It can meet on one channel of the 2320, and it can be encyphered if we use the old COMSEC devices, which are added to the old radio.

We can load those things in advance, both the hopping sequence and the encryption codes, through issued loading devices that carry several days of keys and codes, or we can load them over the air.

So, it is a very versatile radio that brings with it a lot of capabilities. Hopefully, that will answer some of your questions.

Mr. **Miller**. I would like to ask, General, is it possible, if you are changing or hopping frequency a couple hundred times a second, is it possible for someone to jam a number of frequencies and disrupt part of the message?

General **Harris**. Let me say to you, first of all, sir, that any radio signal can be jammed if the conditions are right and if the organization that is trying to jam it is willing to pay the price.

If you try to focus on more than one channel, then you become involved in what we call barrage jamming or jamming across the entire spectrum, and you blot out everything, or you pick a portion of those 2,320 channels and; for example, to jam the first 700 of them.

In that case, it is likely that the signal would not be intelligible, and we would have to change the hopping sequence and move to the remaining 1500 or 1600 channels. But it is possible to jam any radio signal.

Mr. MILLER. If one of those was picked up by the enemy would they be able to tell from that unit the coding?

General HARRIS. No, sir. They cannot tell—they can tell the technologies involved, but not the loading sequence of the hopping, nor can they tell the loading sequence of the encryption device.

Mr. MILLER. Is that loading sequence changed often?

General HARRIS. Yes, on a daily basis.

COMMUNICATIONS DURING GRENADA

Mr. MURTHA. General Harris, you heard me ask Dr. Smith about Grenada, and you are familiar with what happened in Grenada and the problem we had with communications? Go over the problems we had and what we have done to overcome them.

General HARRIS. I was not here during the portion of the hearing that addressed that issue. I think two things are pertinent here. One, there were a lot of stories that came out of Grenada that weren't absolutely true; and, two, we did have some problems with interoperability in the communications business.

The SINCGARS radio, as I am sure the committee knows, is also being procured by the Marine Corps. I signed a memorandum of agreement with those folks about three months ago, and they gave—they contributed some $29 million to the procurement activity that we have now ongoing to buy the SINCGARS radio.

We have already issued to them one battalion set of the SINCGARS radio that is in production. This is the frequency hopping model, but not the embedded COMSEC model. We are working on a configuration Control Committee. We have both Air Force and Navy membership on that committee. We are working with the Air Force on the airborne version of the radio to provide all the features and capabilities that we are talking about in the ground version and in an airborne version.

I think, too, Dr. Smith talked about the Joint Tactical Command and Control Communications Agency that is commanded by Army Brigadier General Dick Mallion. We have changed a great deal of things in the last few years, and we have given that agency a lot more responsibility in coordinating and ensuring interoperability between the services as we come forward with communications and automation systems.

Requirements documents for all services now must go through that organization, and they do a great amount of reviewing for interoperability to ensure that we are in fact complying.

Additionally, as we did the testing on the Mobile Subscriber, equipment at Fort Hood late in 1988, we had in that test a requirement to demonstrate interoperability with both Air Force ground multi-channel system and with the NATO organizations.

We are working toward a common high-frequency wave form, and while we have some difficulties in marrying up our tactical satellite terminals because of the rate of multiplexing, that is also being corrected now.

I think OSD—C31—and JTC3A have played a big part in that.

Mr. **MURTHA**. Let me ask a question in another way. For instance, the ship-to-air communications during the Grenada exercise, was it satisfactory?

General **HARRIS**. Sir, I can't answer that question directly.

Mr. **MURTHA**. How about ship to shore?

General **HARRIS**. We had difficulties with ship to shore, but it was a problem of whether or not the unit was equipped with similar type communications, not whether or not they were compatible.

Mr. **MURTHA**. Is that because the communications people weren't brought into the operation soon enough? Is that what happened there?

General **HARRIS**. It is the view of many of us that they weren't brought in early enough to ensure that those capabilities were present.

Mr. **MURTHA**. So regarding ground communications, the Marines could talk to the Army, the Army could talk to ground services?

General **HARRIS**. Yes.

Mr. **MURTHA**. They could talk ground-to-air?

General **HARRIS**. Yes.

Mr. **MURTHA**. Ship to ship, they could talk to each other, but ship to shore, you are not sure?

General **HARRIS**. That is outside my knowledge.

SOVIET JAMMING

Mr. **MURTHA**. If the Russians would have had a jamming capability there, what would they have been able to jam five years ago?

General **HARRIS**. Essentially they can jam any of our normal high frequency radios.

Mr. **MURTHA**. So they could jam all this except the air to air?

General **HARRIS**. No, sir, they could jam air-to-air as well.

Mr. **MURTHA**. So, they have the capability to jam all this communication, would that interfere with their own communications if they jammed ours?

General **HARRIS**. If they, in fact, jam across the entire or a large portion of the bandwidth, there is the potential to take out their communications capability as well as ours.

Mr. **MURTHA**. What has improved in the last five years in the field? Have we got any different equipment in the field today than we had then?

General **HARRIS**. Yes, sir. The most common defense against jamming is what we are now employing, the frequency hopping which broadens that area over which the jammer must operate, and reduces the vulnerability of the system.

SINCGARS, EPLRS—and EPLRS is a frequency hopper—HAVE QUICK, JTIDS——

Mr. **MURTHA**. How extensively is this deployed?

General HARRIS. SINCGARS is in early deployment and JTIDS and EPLRS are scheduled for development in the 1992-93 time frame.

Mr. MURTHA. Does the Army, across the board, have SINCGARS?

General HARRIS. No, sir. We are in the early stages.

Mr. MURTHA. What about the pilot projects, Korea and Panama?

General HARRIS. These are not pilot projects, these are operational radios.

Mr. MURTHA. They are the early deployment of the radio?

General GUENTHER. The ones with the outside crypto as opposed to the embedded. We also have the PLRS unit with the Marines. We have fielded over 3,000 of those units, and we are buying for the Marines an additional 800, and they have full capability for frequency hopping. We have learned from them for the Army buy—we are using that technology and putting data capability on it.

Mr. MURTHA. What I am concerned about, I am trying to figure out what problem we might have if we had another operation like this, and they had jamming capability. You are saying only a few units have this equipment out in the field, so if you go into an area where there is a jamming capability, we have a problem with operations.

General HARRIS. That is true. On the other hand, I have offered, and the Army has accepted—not necessarily at my initiation, but the premise at least that it is a whole lot cheaper to shoot the jammer out of the air than to protect every radio and ever receiver that we may have across——

Mr. MURTHA. So, conversely, it is not that important to get these radios out into the field?

General HARRIS. No, sir, it is important to get the radios into field. Because there is not the absolute guarantee that you are going to be able to block all jammers, and even in the process of locating and destroying them——

Mr. MURTHA. How important is it that we get these to the field? From a practical standpoint, how important is it? You said we can knock the jammers out, that is the cheapest way to do it.

So, the question I ask makes it seem to me less important to get these radios to the field than I thought originally.

General HARRIS. The anti-jamming feature of these radios is not the only reason we want them. There are more features, to include embedded COMSEC. Even if you don't have jammers, the COMSEC reduces the probability of intercept and the introduction of false traffic. There are other features.

Mr. MURTHA. What are the other features?

General HARRIS. We moved to a digital path, a higher quality, more reliable radio system. We expanded the capacity of the radios. We greatly increase the reliability of the system. The FM radio that the Army and Marines are now using on the ground in tactical units has a mean time between failure of 250 to 300 hours. We know we will see at least an improvement of ten times that, and perhaps dramatically more as we field them.

Mr. MURTHA. What percentage of your units in the field right now have the new equipment?

General HARRIS. There are 100-some radios in Korea, and an additional 100 being fielded in Panama, and those will be transferred——

Mr. MURTHA. So, very few units have this?

General HARRIS. Yes, sir.

Mr. MURTHA. Even units deployed like DELTA FORCE and so forth don't have the new radios?

General HARRIS. No, sir. If we take the production schedule and the program that is portrayed in the budget that is before Congress now, we will be in the year 2004 before we buy out the SINCGARS.

Mr. MURTHA. You feel this is a priority?

General HARRIS. Yes, sir.

Mr. MURTHA. You haven't been able to convince the Joint Chiefs, or whoever is making these budget figures up, that it is a high enough priority to spend more money in it?

General HARRIS. We are funded at a level that is not as high as we would like. We have the capacity to produce more of those radios, but it is a matter of priorities across the entire defense budget.

Mr. MURTHA. Mr. McDade?

VEHICLE INTERCOMMUNICATIONS SYSTEM

Mr. McDADE. Thank you, Mr. Chairman.

General, I would like to spend time talking to you about the vehicle intercom program. As we went over the SINCGARS program, the committee noted that the Army was essentially trying to completely upgrade its tactical communications on an end-to-end basis, except for the component that ultimately connects our soldiers in the vehicles, the vehicle intercom systems.

We talked to you about this last year, and there were serious deficiencies in the current vehicle intercom system, among them about half the messages that are relayed are lost; that is accurate, isn't it?

General HARRIS. I am not familiar with that figure. I will accept it.

Mr. McDADE. It is not hardened against EMP?

General HARRIS. No, sir.

Mr. McDADE. It has no jam-resistant capability?

General HARRIS. Not within the vehicle.

Mr. McDADE. It doesn't fully interface with SINCGARS?

General HARRIS. It does. We have to make adjustments, but we can put SINCGARS in on the current system.

Mr. McDADE. You have to fix the system, because the system only takes one channel, as I understand it, with SINCGARS.

General HARRIS. We have multiple frequencies operating within tanks now.

Mr. McDADE. You are losing 50 percent of the communications within the tank?

General HARRIS. That is a figure I am not familiar with, but I will accept that.

Mr. McDADE. Last year, General Morgan testified that it was in the best interest of the Army to get rid of the current system and replace it. In 1986, the requirements documents said the VIC–1 cannot meet current requirements mandated from the field.

In an effort to be helpful and work with you, we earmarked $2.5 million because we were told that there was an off-the-shelf system currently available, and that it could be fielded, in fact, within about two years. So, we put $2.5 million in for source selection and added $10 million in procurement. General, let me ask you, do you agree with the statement by General Morgan, the requirements document and Under Secretary Stone's statement that the existing system has to be replaced?

General HARRIS. Yes, sir. We acknowledge that the system is substandard to what we would like.

Mr. McDADE. Thirty-year-old technology?

General HARRIS. Yes, sir.

Mr. McDADE. We had a statement from the Army that indicates there is an affordability problem which seems kind of quizzical, because as we see the procurement costs between the current system and its replacement, there is not a lot of difference.

Do you know how much difference there is,

General HARRIS. Sir, I think the estimate that we have is that the major cost would be in the—the difference would probably be in the operating and sustaining cost, the procurement is $2,310 for VIC–1 versus $10,000 for the complete VIS system.

Mr. McDADE. Wouldn't you make savings in all the O&M costs, because you have 30-year-old technology?

General HARRIS. That is correct.

Mr. McDADE. Do you have any cost data that would show you what it costs to support from top to bottom one of these systems in a tank?

General HARRIS. In order to procure that system, it would require us $50 to $55 million over the life of the POM.

Mr. McDADE. I am not talking about procuring, I am talking about maintaining the VIC–1 system. We talked about not a lot of difference in procurement costs, because you are continuing to buy the VIC–1, right,

General HARRIS. Yes, sir.

Mr. McDADE. In procurement, it is kind of a wash between the vehicle and the new system. Where you would save money would be getting rid of old technology in the tank.

General HARRIS. Yes, sir.

Mr. McDADE. The new system is 10 to 1 less expensive?

General HARRIS. That is the information I have.

Mr. McDADE. What would the five-year O&M cost on that 10 to 1 figure be, do you have any idea what it would cost over a five-year period to maintain the old technology?

General HARRIS. There are over 57,000 VIC–1 in the system. It cost $10.8 million a year to maintain them. The fire-year cost is $54 million.

Mr. McDADE. I am told that you just had live fire tests last year, and the evaluation showed serious deficiencies once again in the current system in the tank.

Are you familiar with those?

General HARRIS. I am not, but I will be.

Mr. McDADE. Comment on that.

[CLERK'S NOTE.—Classified insert was removed.]

Mr. **McDADE.** Haven't we funded the current system in fact all vehicle intercom systems, out of part of vehicle production costs? It is not a separate line item under our current system, is it?

General **HARRIS.** I believe it is not a separate item, sir.

Mr. **McDADE.** I think we have it in the whole vehicle line. I think it is included in the cost of the vehicle.

General **HARRIS.** A response insert last year said it is not managed in a separate line.

Mr. **McDADE.** What we are doing, it seems to me, is spending $1 million per copy on the Bradley and $2 million on the M-1 and going to a Block Two upgrade, which is going to add additional cost to the vehicle. But here, we are now caught quibbling around on replacing old technology which loses 50 percent of the communications capability of the vehicle, which seems to be an indefensible way to proceed.

How can the Army justify expensive Block improvements and not take care of a basic system, the vehicle intercom system, which is not a lot of money? I don't know how we justify that. I don't think you do, either, do you?

General **HARRIS.** I really have nothing further to add to your comments.

Mr. **McDADE.** You would replace it immediately, wouldn't you?

General **HARRIS.** I think I would like to see it replaced. I think the Chief of Staff of the Army would like to see it replaced.

Mr. **McDADE.** What concerns me is we have a letter from Under Secretary Stone saying you aren't going to do this. We put $2.5 million in for source selection. Meanwhile, you are about down to the point where, in the Block Two version of the tank, you are getting ready for some kind of a production run. Why not move to dovetail the intercom with this? We are being advised that the intercom source selection maybe cannot be made because of affordability, while the $2.5 million that we put in the R&D budget last year is sitting there.

We are told that the CECOM office will probably close at the end of the month, despite our putting $2.5 million that we put into R&D to get the system into the vehicles. The program office is going to close at the end of the month.

General **HARRIS.** I believe CECOM is working on a proposal that would be ready to go to the field.

General **GUENTHER.** Source selection is due to be available by April if the money were there.

Mr. **McDADE.** You are going to continue with source selection?

General **GUENTHER.** We would be able to put the RFP on the street if the money were available to do it.

Mr. **McDADE.** Let's be clear, because there is an intense interest in the committee. That is why we earmarked $2.5 million to suggest that you go to source selection; we added $10 million in initial procurement funds, and told you to get rid of the old technology and get a new communication system. We don't want to hear that the program office is not able to continue proceeding in accordance with what we thought was a decision we had made.

We don't want to see the program get killed. So I assume you can tell me that office is not going to close, you are going to go to source selection?

General HARRIS. Let me get back and give you the specifics of that program.

[The information follows:]

Because the program lacked funding authorization, it appeared that the system would not be bought and the CECOM office was scheduled to close at the end of March. Now with the possibility of receiving the required funding, the office has been told to remain open and to continue work on the Request For Proposal (RFP) scheduled for release in April.

Mr. McDADE. We added $10 million in procurement.

General HARRIS. Yes, sir.

Mr. McDADE. You have $2.5 million so you can make a source selection?

General HARRIS. Yes, sir, but what we need to add to that $10 million in 1989 is an additional $17 million, and then in 1990, $26 million; and in 1991, $31 million in order to make the procurement a live one, and it has been determined we don't have those dollars.

Mr. McDADE. You first have to make a contract award.

General HARRIS. Yes, sir, but we can't go to contract without adequate money for procurement.

Mr. McDADE. You can take it out of the vehicle line. What sense does it make to shift and treat as a separate item an internal communication system which was always funded as a part of the cost of the production of the tank? Why have a tank out there with a system that loses 50 percent of its communications and that is 30 year old technology? Why can't you take it out of the vehicle production line?

General HARRIS. You are talking about the Block Two version of the tank, the tanks now in production, not a retrofit?

Mr. McDADE. And Bradley too. When you buy the current system, about the same cost as the new device in procurement dollars, you have got money in the line right now to buy it, because you are funding it out of the cost of the tank. We had that discussion a few minutes ago.

Now we are talking about procuring a system that is going to give your tank crews a better opportunity to function. Why not just replace what you are buying. Don't buy a 30-year-old radio. You buy the new radio out of your existing line, you don't need additional procurement dollars.

Doesn't that make sense to you?

General HARRIS. Yes, sir. May I—I understand exactly what you want us to do. May I ask that I be permitted to look at that and get back to you? I understand the thrust of your questions.

Mr. McDADE. Stay in touch, and we have extra questions we will put in the record.

[The information follows:]

The magnitude of this program is greater than it first appears. We have estimated that to make an economical buy we must procure 2,300 items a year. This quantity gives an average cost per vehicle of $10,000. There are over 57,000 VIC-1 in the system. At the average VIS cost of $10,000 each, the total replacement cost would be over $570 million. By buying 2,300 VIS a year it would take 25 years to retrofit all vehicles. If we buy for new procurement vehicles only, about 900 per year, the cost would be considerably more than $10,000 each. My recommendation is to authorize the $10 million in fiscal year 1989 Other Procurement, Army funding to get the program through solicitation, testing and the initial buy. The program should then be put back in the vehicle line.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

Question. The Vehicle Intercom System would upgrade the combat vehicle intercom systems of the M-1 tank and the Bradley Fighting Vehicle. The Committee added funds above the budget last year for an NDI (Non-Developmental Item) approach for this program. What are the current shortcomings of the present intercom system in the M-1 tank and the Bradley Fighting Vehicle?

Answer. There were two major shortcomings ———. Installing a VIS, however, will not increase the survivability of the crew. It does mean that the intercom will stand a better chance of remaining operable after a hit and that a replacement crew might be able to operate the vehicle. ———. This was accomplished by a combination of improved electronics in the VIS, improving the acoustical ear cups and adding a power mike to the helmet.

Question. Last year, General Morgan of the Army testified with regard to this program that "An independent NDI approach will be pursued should funds be made available." Do you agree that an NDI approach to this program is feasible?

Answer. Yes.

Question. The funds added to the budget last year for the VIS system are in the "appropriated but not authorized" category and that issue has not been resolved. However, the Committee understands that the Authorizing Committee intends to remove any objections on their part to the expenditure of these funds. In your professional opinion, would these funds provide an important commo upgrade to the M-1 tank and the Bradley Fighting Vehicle?

Answer. Yes. I feel that the authorization of the $10 million in OPA funds and the release of the $2.5 million in RDT&E would be enough to get the program started. After start-up the VIS funding should be put back in the vehicle.

Question. How many more years can the VIC-1 and its 30 year technology be supported before it must be replaced?

Answer. There are over 57,000 VIC-1's in the Army's tracked vehicular inventory. They cost $10.8 million a year to maintain, but to replace them would cost $570 million. With this total cost, you can understand why the VIC-1 will be in the inventory for several more years. CECOM will be required to maintain the VIC-1 as long as they remain in the inventory.

Question. Correct me if I'm wrong. Haven't vehicle intercom systems been funded as part of vehicle cost—out of the vehicle funding lines, rather than a separate line item?

Answer. The present intercom system is included in the vehicle funding line.

Question. What is wrong with continuing this approach—funding the new VIS within, say the M-1 line or the Bradley line?

Answer. Mr. Stone's letter provides a schedule for an NDI acquisition of this system, and as noted the FY 1989 Appropriations Act provides $2.5 million for this purpose. There is nothing wrong with funding VIS against the using vehicles line. In fact, it is probably the best way to manage the program. The exception is that the $2.5 million for R&D and the $10 million in OPA should be authorized and released in FY 1989 to put life into the program.

Question. General, I'm advised that the Army Test and Evaluation Command conducted live-fire tests on the M-1A1 last March, which revealed serious problems in terms of keeping the current intercom system operational in a combat scenario. Are you aware of these tests? What did these tests reveal about the current intercom system?

Answer. ———.

Question. Does the Army intend to solicit bids, make an evaluation, etc., up to the point of source selection? Is the schedule laid out by Mr. Stone valid through execution of a procurement contract?

Answer. At the present, there is no funding authorized for VIS. If the solicitation was released and authorization was not received, the Government could be sued by industry for the proposal costs. Under these circumstances, CECOM should not release the solicitation until the funding has been authorized. The schedule laid out by Mr. Stone for the first 3 years is valid. If we want the program to remain cost effective, the out year quantities should be plussed up.

Question. With respect to installing VIS into already fielded equipment, would the Army intend to do this concurrently with the fielding of SINCGARS or as part of some other program? Where would such a retrofit program be funded?

Answer. Ideally VIS would be fielded with SINCGARS, but the VIC-1 can interface with SINCGARS so this is not a critical factor.

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. MURTHA. This committee tries to be helpful. Last year, we were helpful in putting language in the bill, the funds appropriated for procurement of the TSEC-KY67 radio shall be available for procurement of SINCGARS. Now, we don't like to micro-manage the Defense Department, but when we see examples like Mr. McDade is talking about, it is frustrating.

How much are we talking about per unit to replace those radios?

General HARRIS. The radio or the intercom?

Mr. MURTHA. The intercom system. We think it is $3,000 a piece.

Mr. McDADE. It is pretty much of a wash, you have already testified, General.

Mr. MURTHA. How much does that tank cost?

General HARRIS. A couple million dollars.

Mr. MURTHA. A couple million dollars, and we can't get a good system. Mr. Miller.

SINCGARS RADIO

Mr. MILLER. Thank you, Mr. Chairman.

I understand that two sources for SINCGARS are absolutely essential to meet surge production requirements anticipated to support mobilization, and in your statement, you show $315.7 million requested in 1990 will procure 15,900 radios. Last year, we discussed this and and at that time, to make it economically feasible, it was necessary to have two sources, but it was necessary for each source to produce some 12,000 units, and apparently we have 15,800 now divided between two sources, is that correct?

General **Harris**. Sir, I will ask General Guenther to address that.

General **Guenther**. What we have done with the second source in July of this year, we awarded a second source in 1988. In cutting in that second source, of course, there was a buildup in proper testing to get where we need to go.

We will ramp up that source as we go through the appropriate amount of testing to a ramp-up figure equal to the primary source.

The primary source will be ramped up to a total figure of 1,375 per month. The second source will get to that figure some time in the 1993 time frame, and the prime source in 1991. As we ramp up, we will be getting additional radios from both sources, and then we will have full competition of the two sources for the very reasons that you talked about.

Mr. **Miller**. Would you say, then, that the 1,395——

General **Guenther**. 1,375 per month, sir. The total acquisition objective of the Department of the Army on SINCGARS radios is 350,000.

Mr. **Miller**. That is the objective?

General **Guenther**. Right, sir.

Mr. **Miller**. But at the present time, what would be the minimum economic production from both sources?

General **Guenther**. From both sources——

Mr. **Miller**. Has that changed since last year, when it was 12,000?

General **Guenther**. Right now, when we have both sources and you have to take it when you are both at full production, we expect to be at a 1,375 per month rate to meet our objective.

General **Harris**. The figures are a monthly production rate. We need to be producing in the vicinity of 20,000 radios a year in order to get the maximum production efficiency.

Mr. **Miller**. So that is 10,000 from each source?

General **Harris**. Eventually, we will compete that, as I am sure you will recall, that head-to-head second versus primary source competition.

But in 1991, we will be producing at an economical rate of about 21,000 radios.

Mr. **Miller**. When you mention——

Mr. **Murtha**. Will the gentleman yield?

Mr. **Miller**. Yes.

Mr. **Murtha**. You are buying now at about 14,000 per year, is that accurate?

General **Harris**. No, sir. We have a production buy with ITT on the first source production right now, and that is about 14,000 radios a year. We will ramp up the second source as well, and by 1991, we will be buying something close to 22,000 radios.

Mr. **Murtha**. 20,000 is the economic buyout?

General **Harris**. I have given you a round number on that——

Mr. **Murtha**. For the record, put in what the economic buy is, because last year, the Defense Department asked for F-16s, and we put 190 in, and it saved us $2 million per airplane. I am sure we will save some money with radios if we make an economic buy, but if they slow down the buy, we will be paying more per unit than we should.

[The information follows:]

The maximum economic production rate of 16500 radios per year per contractor (1375 per month) was established prior to entering production. It was the rate at which prospective contractors were told to facilitize. The minimum economic rate of 10800 radios per year per contractor (900 per month) is defined as the lowest production rate which will not result in an inordinate price increase. Source 1 will reach the economic rate early in 1991. The second source will reach the economic rate by the latter half of 1993. Current plans are to have one producer at 16500 radios per year and one producer at 10800 per year. The total of 27300 radios per year includes all of DOD. The amount to the Army is reduced by the other service requirements.

General HARRIS. We have bands in both contracts which we can order, a rather wide band we can order without renegotiating the contract, but the cost varies.

Mr. MURTHA. Mr. Miller?

Mr. MILLER. You spoke of jamming a while ago, and as I understood it, you were talking of an airborne platform used as the jammer, and it was necessary, as you said, better to kill the jamming mechanism instead of changing other units; is that what I understood?

General HARRIS. Sir, we can expect jamming from two sources, both ground and airborne jammers. The ones to which we are the most vulnerable because they are the most likely to cover a wider area are the airborne versions, but there are ground jammers as well.

What I intended to convey was rather than protecting every radio in the field with additional forms of anti-jamming insurance, over and above that which we now provide in the frequency hopping mode, I believe it is cheaper to shoot the jammer out of the sky. That ought to be a very short career path for the pilot of an airborne jammer, and we are moving toward doing that within the Army.

That does not mean that we would not need any AJ capability such as the frequency hopping, because we still have the ground jammers to contend with, and the possibility, if not the probability, that we can't get all the airborne jammers that are out there.

Mr. MILLER. Is it possible at the present time to have a ground station trigger a satellite to turn on a jammer, and that jamming could be done from a satellite?

General HARRIS. I would imagine the technology is there. I don't know whether such a capability actually exists or not. I would take you back to an earlier question, when you do that, you would probably jam the entire frequency spectrum of both sides of the conflict, so both sides would lose their communications.

General KIND. Part of the issue is when do you turn the jammer on or off. The person doing the jamming is in control of the situation. They do it when it is to their advantage. With some planning you can selectively turn the jammer on and off, so given that, you don't want to leave them the capability to jam with impunity.

To take the jammer out, there is time required to accomplish that. You have to find out where he is, get the information to the appropriate firing mechanism, get the instructions to the firing mechanism so they can get a round off, or aircraft to intercept, so in the time it takes to do that, there is an expense to our own resources that you might be using for something else in that process.

You are better off if you have an AJ capability in your own equipment to enhance your own posture, but you also want to do things to keep the enemy from operating with impunity against you and concentrating his forces in one area, so you need to have the capability to take the jammer out as well.

COMMAND AND CONTROL

Mr. **Miller**. The Army is making great strides updating the technology, doing the research for C3, but how are we comparing ourselves with the Soviets? We know they are doing the same thing. We have had people tell us we just need to stay—at least a little ahead of the Soviets.

Are they gaining, are we stretching the differential?

General **Harris**. My familiarity with that particular area is probably a bit more limited than you might suspect, but the technology is in the hands of the Soviets. I don't believe we have seen any great fielding of the kinds of technologies that we are discussing here today, in terms of the anti-jam capability and the ground radios and those kinds of things.

I think the big difference is in the philosophy of the command and control that the Soviet forces use, and the technologies that we are advancing in our command and control systems under the guidance of General Kind, the advanced fire direction for the artillery and an analysis system, and those kinds of things.

The technologies that we are introducing with the command and control systems, which ride the advanced communication systems, we think are well ahead of the Soviets, but the technology capability is in their hands.

We talk, as I am sure you have heard the Chief of Staff and other witnesses from the Army, about getting inside the decision cycle of your enemy, which says we must be able to anticipate what he is going to do and decide out action before he decides.

That requires communications and command and control. In order to be inside the decision cycle, in order for our commander to make his decision, we must provide the information without delay. That is where we are headed with our technologies.

I think in command and control, we are ahead of the Soviets, and I have seen no evidence of systems in the field like we are talking about, but the technology is there, and doesn't mean that they are not capable of fielding it at any time.

Mr. **Miller**. When you speak of our commanders anticipating what they are going to do, that sounds like a crystal ball. What method is used by our commanders that allows them to anticipate what could be done so they could counter that action.

General **Harris**. Those kinds of decisions by commanders are dependent upon accurate intelligence being available to them, and a system like ASAS is designed to deliver that. It is dependent upon the communication system for them to exercise command and to issue instructions and guidance to the forces under them. It is dependent upon the skills of the individual commander and his ability to assimilate all of that information, to recognize what is out there and to make a decision accordingly.

All those things contribute to a tactical commander being able to get inside the decisionmaking cycle of his adversary.

General **Kind**. We know they are experimenting and getting the measure of how far they have proceeded; and comparing that to our efforts on the developmental side is difficult to measure the balance. We know they are experimenting with it, and the experiments are getting on a larger scale, so it is important to us to continue our efforts.

Technology is the sort of thing that you have to keep working if you want to stay ahead.

Mr. **Miller**. We have to keep working and spending the money, but we have no comparison as to where we stand?

General **Kind**. To say we are twice as far, how do you measure that in software terms and that sort of thing?

Mr. **Miller**. Thank you.

Mr. **Murtha**. Mr. McDade?

MOBILE SUBSCRIBER EQUIPMENT

Mr. **McDade**. Let's talk about MSE. The first question is not about the 1990 budget, which is the fourth year in funding. There was accompanying documentation on a 1991 buy which indicated that under that plan, you would go down from buying something approximating units for 11-batallions down to two in 1991. According to our information, the result of that is that the cost increases by 70 percent.

Will you take a look at that? It doesn't seem reasonable to have four years of stable funding for it, and to stretch it our for a very small buy in fiscal year 1991. There must be some other option available.

Do you agree with what I am speaking about?

General **Harris**. Yes, the budget before the Congress has a full buy in 1991. There are other things ongoing within the Defense Department that we have to consider.

Mr. **McDade**. Is it two single battalions in fiscal year 1991?

General **Harris**. No, sir, the budget that you have calls for us to outfit two complete divisions, three——

Mr. **McDade**. I think you are talking about 1990.

General **Harris**. No, sir. 1991.

Mr. **McDade**. Take a look at it. Information that we have would indicate that in 1991, there is a substantial decrease in the number of units you are buying, and a subsequent ramp-up in costs.

General **Harris**. There are fewer units, you are correct in that regard, but we also include in the 1991 budget money to continue fielding for some two or three years after 1991 of that equipment.

Mr. **McDade**. Are unit costs in 1991 the same as the unit costs in 1990?

General **Harris**. Essentially, it is.

Mr. **McDade**. There is no increase in hardware unit costs?

General **Harris**. No, sir.

Mr. **McDade**. It is a fielding cost?

General **Harris**. It is a fielding cost.

Mr. McDADE. Make sure we have some information for the record.

[The information follows:]

Contractually, the unit cost between 1990 and 1991 is the same, with 1991 being increased for inflation. Because of the reduced quantity of sets being procured in 1991, the unit costs will rise by a penalty amount (20-25 percent). As we prepare to execute the 1991 contract, we will have to negotiate with GTE on the final costs.

General HARRIS. If you look at the money, you will see in the early years, if you absolutely divide—if you absolutely divide MSE fielding costs in the early years by units fielded, you will see what appears to be a higher rate. That is because of some early funding costs that were included in the procurement, and we level off and then at the end, we have some funding tail costs as we reduce the numbers, and it appears the per-unit cost has gone back up when, in fact, it stayed pretty constant.

Mr. McDADE. You are in agreement with the contractor, and the funding we have given you has kept unit costs pretty steady.

General HARRIS. Yes, sir. What has varied are the up-front costs of procurement, and the tail-end costs of continuing the fielding after we have finished actual procurement of equipment.

Mr. McDADE. Is it accurate that the unit is not anti-jam, there is no anti-jam protection in MSE?

General HARRIS. That is correct.

Mr. McDADE. We had our Investigative Staff look at it, and they were critical of that factor. Is there anything ongoing to correct that problem, to make it jam-proof?

General HARRIS. I know of nothing that is in the program now in the form of a Preplanned Product Improvement—P3I—to make that system anti-jam safe.

Mr. McDADE. You would have to go to a heavy R&D effort?

General HARRIS. Not necessarily. But there are some operational features of that system that make it a great deal more jam-resistant than the system we replaced.

Mr. McDADE. Do this for me, give me your professional opinion now. You are obviously still a fan of MSE, despite its inability to resist on paper the jam threat, as our Surveys and Investigative Staff says. What, in your professional opinion, makes MSE so attractive if it is easily jammable?

General HARRIS. Again, if you can acquire the receiver, then you can jam it. This system is a highly directional, light-of-sight system. It has a beam width of only a couple of degrees, and so a radio that is 90 degrees or so from the receiver may be able to influence it.

In terms of jamming, it is not an omnidirectional receiver, so you can't jam from many directions. That feature is there, and that is present in that particular style of system.

Secondly, we have some frequency capabilities in terms of moving it around that makes it less susceptible to jamming. Thirdly, the robustness of the system reduces the impact of the jamming action on a single link or couple of links, and finally, the design of the system which brought with it a great deal more individual terminals gives us the ability to operate not from the top of the hill, but from the, if you will, the military crest of the hill, the reverse slope of the hill, and reduce the jamming capabilities of the system in that manner.

And that was designed in as—that was considered and put in as part of the design of the system, to get ourselves off the top of the hills where the antennas are highly visible. And down to the side, where we aren't quite so vulnerable.

General KIND. General Harris discussed the robustness of the system. The nodes are smaller, but there is a much larger number. What that allows you to do is to cover the area in a much more comprehensive fashion on the ones that you need to, but to be specific, it means that your links can be somewhere in the neighborhood of about a third as long, maybe half or a quarter in some cases, and you now have the capability rather than going to the top of the hill and getting to the top trying to get from one place to another.

Besides getting off the side of the hill, you have the capability to vary the length of the shots according to where you think you are vulnerable to the enemy. You want to get behind hills so he can't get you.

Where you are in the open, you want to make the link as short as possible. And the reason you want to do that is that your vulnerability to jamming is in a geometric relationship with distance. Every time you double the distance of your shot, you quadruple your vulnerability to jamming. If you cut the distance of your shot in half, you make it four times as invulnerable or enhance its survivability four times.

By having the greater number of lengths, that feature in itself makes it much more resistant to enemy jamming, and then the other features General Harris has mentioned, getting off the top of the hill so you can take advantage of those features, the system control center that we have with it, an automated support to the planners adds a tremendous capability that we have not previously with the other systems out there.

We have been doing it on a manual basis and taking an AMB method of considering the different frequencies, and you work out to, in great manual detail, which ones interfere with each other. We can plan up a new system and adjust it on a rapidly moving basis as we go.

General HARRIS. We also have within the system at certain locations the ability to vary the power of the radio to meet the specific need of the shot. If we are only transmitting ten miles, we don't need as much power as we might to transmit 30 miles. We vary that power, which makes us less probable for intercept and therefore less probably somebody can target us for jamming.

The French, as part of the examination of the RITA system made such a suggestion on that, found a great deal of difficulty finding those specific radio locations finitely enough to put a jammer on them. We did some of the same kind of excursions during the FOTE at Fort Hood and come to pretty much the same kind of conclusions.

But we are going to go back through some additional tests of the system this year at Fort Hood to determine its vulnerabilty

General GUENTHER. We have EW testing going on in April. It will be a closed loop test, and after that, we will do the assessments and see if we can do any improvements in the system. Secondly, going back to your previous question, if I might, for a second on the comparison and costs under option 5, the 1991 option versus where we are, the quantities in that option, we have two divisions and a corps signal battalion brigade for——

Mr. McDade. You are talking 1991?

General Guenther. Yes, sir, and they are a much smaller quantity than in the past, which certainly has—when we let these contracts, it is a range contract where if you have a smaller quantity you are in a different range of prices and that is why you see some going up.

If you compare it to option 5, you are looking at about a 36 percent increase. What you don't have and which we couldn't assess right now is the effect of EPA, because option 4 was just let, the 1989 option.

Mr. McDade. That is a concern. If you are in a procurement mode, why come out and buy a very small amount at the end of it, pay a heck of a lot more for it, as one would almost expect, why buy it that way after the stable funding you had earlier? Are you saying now that the 1991 unit cost is going to be substantially higher?

General Guenther. It will be higher in total, because of the way we let the contract.

Mr. McDade. Unit costs.

General Guenther. Overall unit costs would be higher, yes, because of the ranges in that year.

Mr. McDade. Yes, but it doesn't seem logical to go out and buy-out a program, which is what we have been doing. We have given this, as has the Army, the highest possible priority. I think it is almost 50 percent of your communications budget, I think. And what we have tried to do along with the Army is give you stable funding so that we would have no increase in prices.

What this committee would expect from stable funding at the end is a decrease in prices, not an upsurge, and it is quizzical that we have a procurement strategy which bounces the unit cost up at the end as we are completing the contract. As normally happens, you are getting at the end and you have the learning curve, you have the funding and you get a lower price per unit.

Isn't there something we can do about that?

General Harris. Let us report back to you.

Mr. McDade. Will you? Take a look at it and let us know.

[The information follows:]

The MSE contract is a firm fixed price contract with a basic and six (6) successive yearly options. The contract and options were written such that: a minimum quantity of equipments must be bought in order to obtain a "unit cost" price break; the more equipment procured in the option, the greater this price break. The FY 1991 requirement was established subsequent to establishing the structure of the MSE contract. The equipment thus far identified for FY 1991 procurement do not achieve this minimum quantity of equipment required to obtain a unit price break. Therefore, the pure mathematical calculation of the unit cost is higher than the proceeding option year. The most cost effective approach to avoid this cost penalty in the FY 1991 buy would be to procure the FY 1991 assets in FY 1990. In order to accomplish this, an additional $265 million would be required in FY 1990 bringing the total requirement to $1,250 million. At the same time, the FY 1991 requirement of $345 million could be reduced by $300 million, with the remaining $45 million used to field previously procured equipment through FY 1994.

Mr. McDade. Thank you, Mr. Chairman.

Mr. Murtha. Mr. Miller, any questions?

SINCGARS RADIO

Mr. **Miller**. One question. General Harris, did I understand you to say when we were talking about SINCGARS a few minutes ago, that in order to acquire one of the receivers, you could then find a way to jam it?

General **Harris**. When you jam sir, you actually jam receivers. You do not overpower a transmitter. What you do is capture the receiver of the radio. It takes less power to do that, but it must also be strong enough to offset the power of the signal being received by the radio.

So when we jam, no matter which side of the line that you are on, you jam either selectively by frequency, that is, selecting a frequency like WMAL-630, and jam that one, and you jam not the transmitter of WMAL, but the receiver in your car on in your home.

Or, alternatively, you decide to jam the entire band width, which takes in everything from 530 to 1530, or whatever the width of that band is. That is very expensive in terms of size and power of the transmitters and the capabilities, and it is very, very difficult to do.

Most jamming is either jamming of a particular frequency or a very small section of the band width based on the jammer's capacity. Sometimes the jamming is based on known use of a frequency, other times it is random, or you select a portion of the band to jam and disrupt communications in that way.

So we react in a number of ways; one is to not stay on a frequency very long, and that is frequency hopping, which we have in SINCGARS and JTIDS, and are introducing into our HF area.

Mr. **Miller**. What other method is used for anti-jamming along with frequency hopping?

General **Harris**. The one that we have used to this point has been the recognition of the fact that you are being jammed and you have two choices, you either try to work through it, which is sometimes very difficult to do, or you leave that frequency and go to another frequency.

Mr. **Miller**. And no other device, no other method other than frequency hopping——

General **Harris**. There is a device that we can introduce at the antenna which reduces its vulnerability to jamming. We can protect an antenna that normally receives a signal from 360 degrees, an antenna like you have on your automobile. We can put a protector, if you will, on some portion of that, and block out a signal from some direction.

That is a technology we have used in the past as well. It amounts to making that omnidirectional antenna a directional antenna, and reducing its vulnerabilities to signals coming from any other direction.

Mr. **Miller**. Thank you, Mr. Chairman.

Mr. **Murtha**. Thank you very much, General Harris. We have some questions for you for the record, and Mr. Livingston has some questions also for the record.

The committee will adjourn until tomorrow at 10 o'clock.

[**Clerk's note**.—Questions submitted by Mr. Livingston and the answers thereto follow:]

Question. General, once SINCGARS is deployed there will be thousands of these units per division. I understand that the Army is concerned about the operation of many SINCGARS at one time and the possible effect this will have on the effective range of each individual unit because of a significant rise in the "noise floor." What is the Army doing to address this situation?

Answer. Over the past 6 years the Army has conducted extensive computer modeling, simulation and analysis to assess the operational impact of many SINCGARS radios deployed in a high intensity tactical scenario. The conclusion of these simulations is that SINCGARS can, with a high probability of success, accomplish its mission in a high density, highly intensive electromagnetic environment.

Question. Have any tests been conducted by the Army or prime contractors for SINCGARS to see what impact a rise in the "noise floor" would have on the range of individual SINCGARS units? If so, please provide details on the results. If not, why?

Answer. In May/June 1988 the Army conducted a field test with SINCGARS production radios to substantiate or validate the findings of the computer simulations I just discussed. Test results showed a high degree of correlation between the modeling's predicted results and actual measured field data. This correlation supported the simulation conclusion that SINCGARS, when fully deployed, can successfully communicate in a high density, highly intensive electromagnetic environment over the ranges or distances needed for both voice and data. This is true even when the individual radios are transmitting a higher percentage of time than normal operations would require.

Question. What would be the costs to conduct effective tests in this area?

Answer. As indicated above, the SINCGARS radio has been extensively tested with regards to the "noise floor" in a tactical scenario. All of these tests demonstrate the capability of the SINCGARS radio to operate properly in a saturated environment. The Army does not plan any additional tests for the SINCGARS in this area.

Question. What impact on range would a raised "noise floor" have on individual SINCGARS units?

Answer. Generally speaking, in a full deployment scenario, the range of the SINCGARS radio is not significantly impacted until the duty cycle of deployed radios (the time the radio spends transmitting as opposed to receiving) is greater than 50 percent. It is extremely unlikely that radios will be transmitting more than 50 percent of the time. In fact, duty cycles in a high intensity conflict are typically less than 35 percent thus having little impact on the SINCGARS ability to complete its mission.

Question. I understand a system called Lincompex could be effective in improving receiver operation near threshold thereby restoring the effective range of the SINCGARS units. Is the Army familiar with Lincompex?

Answer. AMAF Industries, the manufacturer of Lincompex, has provided the Army a specification for the Lincompex Model 2000.

As briefed by AMAF Industries, and as documented in their specification, this model has application to only High Frequency (HF) voice systems. SINCGARS is a VHF frequency hopping voice and data system, therefore the Lincompex Model 2000 has no utility to SINCGARS.

[Clerk's Note.—End of questions submitted by Mr. Livingston. Questions submitted for the record and the answers thereto follow:]

OVERALL C3I BUDGET ISSUES

Question. How did C3I programs make out this year during the internal Army budget process that led to the FY 1990/91 President's Budget?

Answer. The C3 area did receive decrements in the FY 1990/91 budget scrub. The cuts, however, are considered consistent with the Army's overall prioritization and in terms of the impact on readiness, represent an acceptable risk.

Question. The Communications and Electronics portion of the FY 1990 budget request bore the brunt of the total Army procurement reduction for the last year. If any further reductions to Army procurement result during the ongoing DOD budget review, do you expect the C3 appropriation account to take a disproportionate cut as happened last year?

Answer. No, the C3 area is not expected to take a disproportionate cut. The highest priority programs reflecting the greatest contribution to the warfighting CINCs and those programs with the greatest return on investment will be funded at the expense of lower priority but needed programs. The C3 programs are considered a force multiplier and are expected to compete favorably considering overall Army priorities.

Question. Would further cuts to the Army Communications and Electronics budget result in outright program terminations or stretch-outs of existing systems within the OPA-2 account?

Answer. The Army has been forced to make difficult choices in the allocation of scarce resources. Depending on the magnitude, additional cuts would very likely necessitate program termination or stretch-out. However, we believe the C3 procurement program reflects a balanced program which will continue our modernization effort, albeit at a reduced rate.

Question. Given the trend towards non-developmental item (NDI) acquisitions in the C3 areas, what will happen to the Army R&D share of overall C3 funding?

Answer. The Army R&D share of the C3 funding has been reduced in the past couple of years as programs moved out of R&D, into procurement and into the field. Although NDI acquisitions are used whenever possible, R&D will continue to be an important portion of the C3 area to include technology insertion and extension of economic life for existing systems.

Question. Are there major R&D follow-on initiatives in the C3 area?

Answer. Yes, there are major R&D efforts planned in the C3 area. These initiatives will include improvements for technology insertion as well as on follow-on replacements for current equipment.

MOBILE SUBSCRIBER EQUIPMENT (MSE)

Question. The Mobile Subscriber Equipment (MSE) is a digital, secure, automatic switching communications system designed to be highly mobile in a fast moving environment. It is a non-developmental item (NDI) program to acquire what is essentially a cellular telephone system for support of tactical battlefield operations. The committee has supported funding for the basic contract and 4 options totaling $3.2 billion through FY 1989. The budget request before the committee is $984.7 million for FY 1990. As was the case last year, the MSE program constitutes the major portion (about 45 percent) of the Army communications and electronics budget. Statements from the Army indicate that "any perturbation in the funding stream will cause significant impact in the program". If further reductions to the Army C3 budget results from the ongoing DoD "budget scrub," do you anticipate the original funding request for MSE now before the committee to be protected?

Answer. The FY 1990 request has been rigorously scrutinized by the Army leadership. The Army is in agreement that the current FY 1990 request will remain "protected." FY 1991 has been decremented by $277 million from the original request of $345 million. The amended request of $68 million is required to field previously procured equipment until FY 1993 and other ongoing actions.

Question. The FY 1990 budget request of $984.7 million provides funds for the fifth contract option which outfits eleven signal battalions with the MSE system. The budget request also represents the fourth successive year of stable program funding. The accompanying FY 1991 request of $345.6 million completes the procurement of the MSE system with the outfitting of two final signal battalions, a substantial reduction in relation to the FY 1987 through FY 1990 quantities being procured. Cost data derived from the budget justification material shows approximately a 70% increase in the MSE hardware unit cost from FY 1990 to FY 1991, a direct result of the large decrease in production rate. Why after several years of a stable funding stream do we see this dangling requirement for two (2) MSE systems in 1991?

Answer. When the MSE contract was being negotiated and signed in FY 1985, the Army's requirement was for 26 division signal battalions, 20 corps signal battalions, and two (2) training sets for a total of 48 "units." In 1986, the Army identified a requirement for MSE equipment to outfit two (2) additional divisions, three (3) separate brigades, two (2) armored cavalry regiments and two (2) signal companies, to be procured in FY 1991 and submitted this requirement to Congress as part of the 31 December 1986 Selected Acquisition Report (SAR). The FY 1991 requirement has been reported to Congress every year since FY 1987.

Question. Is the FY 1991 requirement a reasonable estimate at this time, or do you foresee changes such as Foreign Military Sales that will help the production rate in 1991?

Answer. At this time we do not foresee any Foreign Military Sales that will benefit the MSE Program. However, there is a requirement for MSE to be utilized in Echelons above Corps (EAC). Unfortunately, because of potential MSE FY 1991 cuts of $277 million, the EAC quantities currently budgeted for FY 1991 production will not substantially increase the production rate.

Question. Does the Army anticipate any changes to force requirements which will necessitate procuring additional sets of MSE in FY 1991?

Answer. There is an ongoing effort to identify and validate requirements for units not originally programmed to receive MSE, i.e., separate Infantry Brigades, heavy separate brigades, forward deployed nodes, Theater Defense Brigades, the Berlin Brigade, new MLRS Battalions, etc. Additionally, now that the first units have been fielded, the original architectural decisions are being revisited to insure the Army tactical, common user, area communications systems provides support to all required commands in the field.

Question. If so, how does this affect the program cost cap?

Answer. Force structure changes are not affected by the program cost cap. The National Defense Authorization Act for Fiscal Year 1987 states on page 321, "The conferees agreed to authorize $903.7 million for procurement of Mobile Subscriber Equipment (MSE). The conferees agreed to a provision (sec. 122(e)) that would place a cap on the total acquisition cost for the MSE program at $4.3 billion. This cap corresponds to the Army's current program that equips 26 Division Signal Battalion sets, 20 Corps Signal Battalion sets, and 2 training sets. The conferees direct that, if the Secretary of the Army determines that additional equipment is required due to changes in force structure, that added equipment requirements shall be identified in the Selected Acquisition Reports (SAR), and are not subject to the cost cap."

Question. If we indeed only require two MSE systems in FY 1991, won't this drive the contractor down to a very uneconomical production rate?

Answer. Since the FY 1991 requirement was identified subsequent to establishing the structure of the MSE contract, the quantities being procured in FY 1991 which include MSE equipment for two (2) divisions, three (3) separate brigades, two (2) armored cavalry regiments, and two (2) signal companies, forces this procurement to be bought at a less than optimum production rate.

Question. Is there anything to be accomplished contractually to avoid the extreme cost penalty we seem to be paying in FY 1991?

Answer. The most cost effective approach to avoid the extreme cost penalty for the FY 1991 buy is to procure FY 1991 assets in FY 1990. If this approach is adapted, an additional $265 million will have to be added to the FY 1990 budget, bringing it to $1,250 million.

Question. The major program event of FY 1988 for MSE was the follow-on test and evaluation conducted at Ft. Hood over the August–October 1988 timeframe. FOTE represented the first time an entire division set of equipment was tested operationally. Could you describe to the committee what the key system performance goals were for this phase of testing. Were these goals met? Please submit additional detail for the record.

Answer. The US Army Test and Evaluation Agency (USAOTEA) established three (3) objectives for the evaluation of MSE during its Follow-on Operational Test and Evaluation (FOTE): assess MES's operational effectiveness and suitability; assess the need for modifications or improvements to the MSE system, doctrine, or training;

measure MSE's performance against contractual requirements. USAOTEA concluded that MSE was operationally effective, operationally suitable and superior to the currently fielded system. Notwithstanding, USAOTEA cited areas of the MSE system that should be improved and also stated that contractual call performance requirements were not met. Specific details regarding all aspects of the FOT&E findings can be found in the USAOTEA published interim Independent Evaluation Report dated 8 November 1988.

Question. The committee understands that the U.S. Army Test and Evaluation Agency (USAOTEA) concluded that MSE was operationally effective, yet some systems improvements were needed to meet contractual and test specifications. Can you discuss what improvements will be necessary and if they can be accomplished within existing program funding?

Answer. Based on assessments of the MSE system to date, five (5) major areas have been identified in which the system was found not to fully meet system specifications or for which improvements are required:

Fixes to allow call performance to meet the 90 percent Grade of Service (GOS) contract requirement.

Improvements to the System Control Center (SCC) to make it a more effective network management tool.

Improvements to the COMSEC KEY Management Plan to make it simpler and more effective.

Improvements to the logistics concept to better equip fielded units with spare parts, spare parts facilities and test equipment.

Fixes to correct human factors (i.e., MANPRINT) deficiencies. These improvements to the MSE system are to be accomplished within the existing MSE program funding cap.

Question. What are the next major testing events scheduled for the MSE program?

Answer. Upcoming major testing events for MSE are as follows: Field Verification Test; Ft Hood, TX, 2nd Qtr, FY 1990. Follow-on Operational Evaluation (Division); Ft Hood, TX, 2nd Qtr, FY 1990. Follow-on Operational Evaluation (Corps); Ft Hood, TX, 2nd Qtr, FY 1991.

Question. When will the Army be able to make a full fielding decision concerning MSE?

Answer. With the award of the third option in December 1988, the Army entered full rate production and fielding of MSE. The scheduled delivery of MSE equipment to units has never changed. Discussions, meetings, decisions, and contractor direction have taken place for the sole purpose of improving the process leading to "hand-off" (government acceptance of the hardware) to the respective units. On 24 February, 1989 a contractual letter was dispatched directing GTE to comply with a revised Fielding/Training Model. This model is the culmination of analysis to derive a more effective and efficient training and fielding process than that which was used previously. Use of this model is ongoing with the 2nd Armored Division and all succeeding active Army fieldings. The now current methodology has been publicized to all MSE units and is being briefed at all site visits.

Question. Under current acquisition plans, maintenance for MSE will be provided by both the contractor and Army personnel. This arrangement will continue until 15 years after the last MSE system is delivered. Operating and support costs constitute a significant percentage of system life cycle costs. Has the Army made any attempt to estimate these costs for MSE, now that we draw towards the end of appropriations for the procurement program?

Answer. The Operating and Support (O&S) costs have been estimated in the June 1988 Baseline Cost Estimate (BCE). The O&S costs are approximately 83 percent of the total MSE life cycle costs. 77 percent of the O&S cost is for military personnel. Included in the military personnel category are the costs for crew, maintainers, indirect support, permanent change of station, health benefits and retirement accrual. One of the major benefits from MSE is the large personnel reduction in the Army's communications tactical systems division and corps.

Question. What percentage of these costs are attributable to the contractor? Are these costs exclusive of support received under the warranty provisions of the production contract?

Answer. Fifteen percent of the O&S costs are attributable to the contractor. These costs are exclusive of the support received under the warranty provision of the production contract.

Question. If follow-on support costs are of sufficient magnitude, has consideration been given to competing this effort?

Answer. It is noted that the contractor support effort was obtained fixed price under a competitive environment. The following support is currently provided by the contractor: replacement training, life cycle software engineering (LCSE), contractor depot maintenance and replenishment spares. There are clauses in the contract to transition LCSE and resident training from the contractor to the government. They will be exercised at the appropriate time. The contractor supported items are nonstandard from the Army's system, but if at any time they become standard items, they will be deleted from the contractor's responsibility and competed.

Question. Will future buys of spare parts be competed?

Answer. All MSE Army standard spare parts will be competed. The nonstandard spares will be procured from GTE under the fixed price contract which was awarded in a competitive environment.

ELECTRONIC WARFARE THREAT

Question. The Army has contended that because of Soviet Electronic Warfare (EW) Threat, communications systems must have anti-jam capabilities. Despite this, the committee has been advised by its Investigative Staff that the Army is planning to procure MSE without any anti-jam protection. In light of the EW Threat we hear so much about, why did the Army not require some anti-jam protection for MSE?

Answer. While mandating a specific level of EW performance was not consistent with the NDI procurement philosophy of selecting MSE from offered existing systems, the Army did consider the ability to communicate in the presence of enemy EW an important feature in the acquisition. EW survivability was reflected as a desired feature in the operational requirements document used in the

Request for Proposal (RFP). In addition, the RFP required offerers to determine the capability of their system to operate in the hostile environment represented by the government provided EW threat and to estimate the overall performance of their proposed MSE system. This information was continued in the offerers proposals and evaluated/considered in the government's determination of the best value system.

Question. The Committee understands that certain aspects of FOTE conducted at Fort Hood addressed the EW Threat. Can you discuss the nature of these tests and Army plans for future EW testing?

Answer. During FOTE, limited EW testing was conducted to obtain data for use in validating various government models. USAOTEA also tested the MSE system's reaction to surgical jamming on a limited basis and assessed operator/system manager reactions to electronic countermeasures (ECM). Constraints established by the FCC and FAA restricted use of the frequencies targeted and the short duration of the jamming signal precluded an objective assessment of jammer effectiveness. The results of the testing were inconclusive. Regarding future EW testing, a closed loop test is scheduled to be conducted at Fort Hood by the Electronic Proving Ground (EPG) during May to June 1989. Data from this test will be used to support modelling and analysis of various EW related issues. USAOTEA will conduct electronic support measures (ESM) evaluations during the FOE (Division) test and will conduct threat jamming against the MSE system during FOE (Corps) when sufficient MSE assets will be available for the first time to conduct a credible EW test.

Question. Will this equipment operate satisfactorily in the hostile EW environment? If not, what does the Army plan to do about vulnerability?

Answer. During the limited EW testing conducted during the MSE FOTE, the system did "flood-search" route calls around jammed nodes and performed better than was expected; however, the results of this testing were inconclusive due to the numerous test limitations. It should be noted that there are numerous capabilities inherent in the MSE system that should reduce the vulnerability of the MSE system to electromagnetic threats. Such features include multiple communications nodes for tandem trunking: "flood search routing" mentioned above; the essential user bypass capability which allows selected subscribers satellited off a Node Center Switch or Large Extension Node Switch to bypass a "down" switch and still enter the network; "power down" features of the mobile radiotelephone (MSRT) that allows the radio link to operate at the lowest power level to maintain communications; the low electromagnetic signature and narrow beam of the AN/GRC-224 SHF radio used to connect command posts to major nodes; low assembly profile and high mobility of the HMMWV/shelter combination. Should planned subsequent operational test and modelling identify deficiencies in the EW area, corrective actions will be initiated. The Army is investigating potential Preplanned Product Improvements (P3I) efforts to enhance the MSE survivability such as steerable null antenna (SNAP), power amplifiers and error correcting codes.

Question. Would the attainment of anti-jam capability require substantial R&D effort?

Answer. In addition to the areas identified in the previous question, additional measures could be implemented if necessary at relatively low cost to enhance the existing anti-jam capabilities (e.g., greater use of SHF, different antennas for the RAU and LOS assemblages). However, the extent of any improvements required in this area and the associated costs will be dependent upon the outcome of future testing.

SINGLE CHANNEL GROUND AND AIRBORNE RADIO SYSTEM (SINCGARS)

Question. SINCGARS is a new family of very high frequency, jam-resistant and secure radios which will be used by troops on the ground, in vehicles and aboard aircraft. The Army is the lead service and eventually expects to buy about 350,000 radios for a total acquisition cost of about $5.8 billion, while another $.4 billion is estimated for the other services. The Army's FY 1990 procurement request before the Committee is $315.7 million to buy 15,900 radios. Of these, 1,725 are to be awarded to the program second source. The current acquisition strategy for SINCGARS calls for stretching out production until FY 2004. In this scenario the last units fielded will be replacing systems that are approximately 50 years old. What factors are driving this lengthy acquisition and deployment schedule?

Answer. The acquisition and deployment schedule is driven in large part by resources available. The current long range acquisition objective provides for DOD to procure a total of approximately 395,000 ground radios, with 350,000 for the Army, and 45,000 for the other services. The current economic production rate is 16,500 per year, with the minimum economic rate of 10,500 per year. The current strategy is to have one producer at each of the above rates, to ensure adequate competition. Therefore, production will continue until approximately 2004.

Question. The Committee understands that the SINCGARS ground based radio requirement is approximately 350,000 units. How is this inventory objective derived?

Answer. The Army Acquisition Objective is determined from the approved Basis of Issue Plan for SINCGARS and includes the quantities of equipment necessary to support both Active and Reserve units as calculated from their organizational structure documents. This total also includes the quantities needed for War Reserves and Prepositioned Organizational Materiel Configured to Unit Sets (POMCUS).

Question. How does this compare to the number of VRC-12 family radios (the system being replaced by SINCGARS) currently in use? If a substantial difference exists, why?

Answer. The number required is the same because the SINCGARS is a one-for-one replacement for the VRC-12 family of radios.

Question. FY 1990 and 1991 seem to be very ambitious years for the SINCGARS program. Funds in the current budget request support a steep production "ramp-up", while at the same time the production line will be converted from non-ICOM to ICOM (inbedded

COMSEC) radios. Furthermore the Army is bringing on a second-source contractor. In view of the conversion to imbedded COMSEC (ICOM) radios and the development of a second-source for SINCGARS production, is the current Army plan for "ramp-up" in FY 1990 and FY 1991 realistic?

Answer. Yes. The ICOM development effort began in 1984 as a result of the decision to eliminate the "sidehat" Vandal COMSEC device. Since that time effort had been expended in developing a producible engineering change. The thrust of this effort was to maintain a maximum degree of commonality with the existing system to minimize production, maintenance and logistic turbulence. This objective was achieved. The ICOM system contains seven common modules, six modified modules and only two new modules (both COMSEC related).

This translates to an electrical design that is 90% common with the non-ICOM. This configuration underwent over 19,000 hours of testing before the ECP was introduced into the production program in May 1988. Since that time an additional 16,000 hours of testing has been conducted. By June 1989 a further 16,000 hours will be completed. This 51,000 hours of testing is in addition to the 220,000 hours already accumulated on the common modules.

To further reduce the risk associated with introducing the ECP a very conservative production integration approach is being implemented. Three hundred pilot units are being built on the current non-ICOM production line. These units will be tested and delivered in October 1989. These pilot units will be followed by the initial delivery of two thousand LRIP units commencing in Jan 1990. All of these units are already on contract and will be delivered before the initial delivery of Option 3 units scheduled for September 1990. Commencing in January 1991 the production of non-ICOM systems will be complete.

In summary, the actual integration of the ICOM program will be done over a two year controlled period. This deliberate managed approach to the ICOM introduction minimizes risks and ensures the smooth and orderly transition into the ITT production line. During the very same period the second source contractor, General Dynamics, will be maturing its system and will only be building 150 systems for testing and preparing to deliver 175 production systems in June 1991.

Question. What is the current production rate of the prime contractor for the SINCGARS program?

Answer. ITT is currently producing 350 systems per month and will ramp to 850 by February 1990.

Question. What is the likelihood that the prime contractor will be able to attain the production levels required for the option 3 (FY89) contract?

Answer. The contractor has satisfied the requirements of the event driven Option 3 by his delivery of 2500 systems. The government is currently evaluating his proposal and anticipates award by 31 May 1989.

Question. If the prime cannot meet this required production capability for option 3 what will be the impact on the option 4 FY90 award?

Answer. It is not until February 1990 that we expect the event driven option (delivery of 8950 systems) to be available for award. ITT has planned and facilitized to produce at full production rate. They are proceeding along the ramp glide path and are making adjustments to compensate for production impediments as they arise. They have demonstrated that they are willing to attack problems as they surface and are efficient in devising innovative solutions in a timely manner. With this aggressive attitude they have a very high probability of achieving the 800 unit per month rate required this year. The prime contractor must meet the requirements of the event driven option or the option 4 will not be awarded.

Question. At what production rates will both contractors be facilitized as they enter head to head competition?

Answer. The head to head competition will occur in June 1993. Both contractors will be facilitized at 1375 systems per month. ITT will be producing 1375 and GD will be producing 1200 systems per month.

Question. The production line of the prime contractor is currently being converted from non-ICOM, to ICOM (imbedded COMSEC) radios. If the Army exercises its options for FY 1989 and FY 1990 as planned, it will have almost 22,000 ICOM radios on contract before ICOM Initial Operational Test and Evaluation (IOTE) is completed about June 1991. The committee understands that the ICOM version of SINCGARS has undergone only limited operational testing. Can you tell us if additional ICOM testing is planned prior to the May 1990 Option 4 award? If not, why not?

Answer. The production cut-in and associated test strategy being implemented for the ICOM program is based on the incorporation of COMSEC into the existing non-ICOM radio as an engineering change rather than the development of a totally new product.

This approach provides an electrical design of the ICOM radio that is 90 percent common with the non-ICOM radio. Over 50 percent of the printed wiring boards in the ICOM radio are identical to those of the non-ICOM radio. The Radio Frequency (RF) modules that were the primary cause of early SINCGARS reliability and productibility problems are now very reliable and 100 percent identical between the ICOM and non-ICOM radios. The ICOM radio contains less than 10 percent new part types over that of the non-ICOM.

Based on these facts the ICOM test strategy minimizes risk while permitting rapid production cut-in.

Technical testing of the ICOM radio has been ongoing since late 1987 and will continue throughout 1989 and into 1990. Specifically, three generations of ICOM development models, each incorporating improvements and lessons learned from the previous version, have been subjected to and successfully completed the full spectrum of electrical, environmental, nuclear and reliability growth testing as was required on the non-ICOM system. Approximately 35,000 hours of reliability Test Analyze and Fix (TAAF) has been completed to date on these units with an additional 16,000 hours projected for completion by mid calendar year.

In November 1988 six of these ICOM developmental models were subjected to Early User Test and Experimentation at Fort Hood, TX by the Army Test and Experimentation Command. Improvements and feedback from these tests are being incorporated into the production version radios.

In 1989 pilot line production of the ICOM radio will begin. Three hundred (300) pilot production radios, built on the production line, will be subjected to the same full spectrum of testing as were the development models to include an additional 31,000 hours of reliability testing. In early 1990 following the pilot testing, three (3) Low Rate Production lots of approximately 100 radios each will be subjected to the full production acceptance testing as is performed on the non-ICOM radio including a Production Reliability Acceptance Test. All these shall be completed prior to the option award scheduled for March 1990. The iterative testing process described above on developmental, pilot production and low rate production hardware will assure the Army with a high degree of confidence that the ICOM radio can meet its contractual specified requirement.

Question. What assurance will the Army have prior to the awards of the FY 1989 and FY 1990 options, that the ICOM radio will meet the reliability requirements (1250 hr Mean Time Between Failure) for the program?

Answer. As mentioned, reliability growth testing has been ongoing since late 1987 on ICOM development models. The 35,000 hours of Test, Analyze and Fix (TAAF) testing to date have yielded in excess of 1250 hours MTBF. The Radio Frequency Modules, which had been the cause of early SINCGARS reliability problems are now working superbly and are 100 percent identical in the ICOM radios. Results of the Early User Test and Experimentation at Fort Hood have given us the basis for entering the FY 89/90 options. Quarterly testing throughout the option years will ensure that 1250 hours MTBF is obtained.

Question. To achieve interoperability of VHF combat net radios all the Services "signed up" to SINCGARS. The Army and Marines will use the same versions of the radio. The Air Force and Navy, however, are independently developing SINCGARS-type capability identified as the ARC–205 and ARC–210 respectively. All are intended to be interoperable with each other. How is the Army ensuring that the SINCGARS will be interoperable with the other services radios.

Answer. The SINCGARS "waveform" is under strict configuration control by the Joint Tactical Command Control Communications Agency (JTC3A). Adherence to that standard ensures interoperability between service radios. In addition a JCS management body is monitoring the service programs to ensure compatibility.

Question. What problems to interoperability does the Army's decision to procure ICOM (embedded COMSEC) SINCGARS pose?

Answer. The decision to incorporate COMSEC into the SINCGARS radio did not in and of itself pose any interoperability problems or issues. The Army chose to capitalize on the opportunity presented by the COMSEC decision to improve the over-the-air fill capability of the radio. This decision was based on findings and recommendations of earlier Army operational testing and user feedback. The improved over-the-air fill capability incorporated in the ICOM radio is fully backward compatible with the non-ICOM radio and has no impact at all on interoperability. The improved capability was incorporated into the JTC3A SINCGARS waveform standard through configuration control procedures. This capability expands the options available to exchange fill variables between the different service radios thus enhancing the ability to interoperate. The change is not required to interoperate. In order to incorporate this added feature an engineering change is required to the Air Force and Navy radio programs. The added feature of over-the-air fill does not impact interoperability between radios but serves only to enhance the exchange of fill data between radios.

Question. How can the Army be assured that the second source producer of SINCGARS can guarantee full interoperability with the prime producer's radio?

Answer. The Army has under its configuration control a set of baseline documentation that identifies the interoperability parameters that must be met by the second source in order to guarantee full interoperability with the prime source's radio. The baseline data is controlled by a SINCGARS Configuration Control Board chaired by PM SINCGARS with representatives from the prime and second source contractors as well as the Air Force, Navy and Marine Corps. No changes or deviation from that baseline documentation can be made by either the prime or second source contractor without the approval of PM SINCGARS. In order to assure the interoperability requirements are being met, the second source contractor is required by contract to conduct four interoperability demonstrations prior to Army buy-off of the first production radio. The initial three interoperability demonstrations will take place incrementally throughout FY 1989 and FY 1990 as the contractor matures his hardware design. The fourth and final interoperability demonstration will occur on First Article radios in early 1991. Contractually, these First Article radios must demonstrate full interoperability before the Army accepts any production deliveries. Additionally, interoperability will be demonstrated in an operational environment as part of the SINCGARS IOT&E scheduled for early 1991 wherein both prime and second source radios will be tested by Army soldiers in field exercises.

Question. Operating and support costs for the SINCGARS are estimated at $7 billion over the next twenty years. The costs for disposable batteries will represent more that 50 percent of these costs. What is the Army doing to maximize the use of rechargeable batteries during peacetime and training exercise?

Answer. The Army is currently using the BB-590 rechargeable Ni-Cad Battery during field exercises. In the classroom scenario, a power supply instead of a battery is being used. The BB-590 does have its limitations, however. It is big, bulky, expensive, does not work well at low temperatures and only has about one-third the capacity of the BA-5590 Lithium Sulfur Dioxide Battery. Therefore, it is not a cure-all and does not eliminate the need for selective use of disposable batteries in peacetime.

Question. What is the Army doing to minimize the practice of throwing away batteries after 24 hours use?

Answer. In Korea, the current practice is not to issue a new battery to an operator unless a discharged one is turned in. The BB-5590, with a rated capacity of 14 amp-hours, has a life of approximately 24 hours under the standard 911 duty cycle. There is a label on the battery, and using the amp-hour capacity meter on the radio, an operator can record the amount of capacity which has been used, thus insuring that the maximum use of a battery is made before discarding. Future initiatives for non-rechargeables include the development of two energy "fuel guages." The first such device will be a stand alone battery tester which will measure the amount of remaining available energy that is stored in a partially spent battery. This reading will be displayed in terms of amp-hours which will then allow a potential user to decide what number of batteries are required for a prescribed mission length. A second design initiative is to reduce the energy measurement function to a single, low cost chip (under 5%). This "Chip" would be integrated as a part of a battery's assembly and would then provide visual indication of remaining energy.

Question. The Committee understands that a new lithium battery is being developed to replace the current battery, the BA-5590, used by SINCGARS. What will be the advantages and cost benefits of this new battery?

Answer. A new lithium vinyl-chloride battery is being developed, and at this time there are engineering development models. The new battery is being designed to be a form and fit replacement for the BA-5590. Since it will have twice the energy capacity, it will have a significant operating advantage in that its useful life at the standard duty cycle will be approximately twice that of the BA-5590. Early cost estimates indicate that this battery will be 35 to 50% more economical in terms of dollars per energy unit than the BA-5590.

Question. Please provide for the record the development and funding status of new battery.

Answer. The battery is approaching completion of development and a production specification is being prepared. Funding is adequate to complete development.

ARMY DATA DISTRIBUTION SYSTEM (ADDS)

Question. The Army Data Distribution System (ADDS) is a $3.6 billion effort that consists of two separate systems, the Position Location Reporting System (PLRS) and the Joint Tactical Information Distribution System (JTIDS). PLRS, currently in production, is a joint Army/Marine Corps system designed to provide near real time information on friendly troop locations. The Army is enhancing PLRS (EPLRS) to have greater data communications capability. The FY 1990 request of $48.8 million funds EPLRS low rate initial production. The FY 1991 request of $223.3 million will initiate full scale production.

As planned the Army will have obligated more than $350 million in procurement funds prior to initial operational test and evaluation scheduled for the April-July 1990 time frame.

The Committee understands the EPLRS development and operational test schedules (IOTE) have slipped more than a year.

What problems is the contractor experiencing?

Answer. During the technical testing of the EPLRS, some test execution and some firmware/software problems arose. The first item dealt with developing and implementing test instrumentation that would measure required performance parameters. The second item required the contractor to correct anomalous system performance. Both of these items were not anticipated in planning the original test schedule.

Question. What will it take to fix the problem?

Answer. Both the fixes and the associated in-plant testing have already been completed by the contractor. It took five months (September 1988 to January 1989) to accomplish this effort. Additional government technical testing during the period February 14, 1989 to March 31, 1989 (approximately one and one-half months) will be required. The additional six and one-half months) will be required. The additional six and one-half months required to complete Technical Test has forced the Initial Operational and Evaluation (IOTE) to be rescheduled to April 1990 (twelve month delay).

Question. Is it wise to obligate procurement funds before developmental testing is completed or IOTE has even begun?

Answer. The EPLRS Program is in reality a Preplanned Product Improvement (P3I) to the ongoing PLRS production contract. Thus, the $300 million in procurement to be obligated prior to the start of the IOTE has to be evaluated, at least qualitatively, from this perspective. Approximately 60% of the hardware is produced on the PLRS Production Line and is common to both the PLRS and the EPLRS. 1,844 of these common modules are provided to the EPLRS from the PLRS Production Contract. These modules were built on the same assembly line which was used to fabricate the Marine Corps Production PLRS Hardware which has already been delivered to the Fleet Marine. There is very low technical risk associated with producing these common modules.

To make an Enhanced PLRS User Unit, an Interface Module Assembly (IMA) must be added. This is the module that performs the basic data distribution function which distinguishes the EPLRS from the PLRS. In the software area, the data distribution function is added to the PLRS software which has already been proven in the Marine Corps equipment. Thus, the EPLRS Technical Test deals primarily with demonstrating the data distribution function that has been added to the proven PLRS design.

Both the PLRS and EPLRS Programs have suffered from a lack of sufficient equipment to demonstrate the capacity and the internetwork performance of the systems. Given the limited assets available for test, there are constraints on the amount and nature of the tests which can be performed. Complete performance testing can only be performed when significantly more assets are available. The Preplanned Product Improvement (P3I) to the on-going PLRS Production Contract—which could also be called an EPLRS Low Rate Initial Production (LRIP)—will provide these assets.

Question. The committee understands that the EPLRS schedule is driven by the schedule of The Forward Area Air Defense Command and Control/Intelligence (FAADC2I) program.

Why is the Army keeping EPLRS on an accelerated schedule when the FAADC2I program schedule has slipped 2 years? (Completion of basic hardware and software has slipped from October 1992 to May 1994).

Answer. Neither has EPLRS been accelerated beyond its baseline nor FAADC2I hardware/software completion been slipped to May

1994. The current FAADC2I First Unit Equipped is scheduled for 3QFY93. The EPLRS First Unit Equipped is scheduled for 3QFY92. These dates represent appropriate synchronization.

You must keep in mind that EPLRS is fielded to other units besides FAADC2I. A distribution of Enhanced PLRS User Units must be made throughout a division area to provide the automatic relay capability of the system which ensures connectivity among terminals. EPLRS supports not only the data requirements of systems such as FAADC2I and AFATDS, but also supports the urgently needed position location and navigation requirements of maneuver control throughout the division area. The bulk of the division set of Enhanced PLRS User Units (537 for a heavy division) should be fielded and the Net Control Station operators fully trained prior to the fielding of FAADC2I in order to avoid the problems inherent in simultaneous fielding of two new systems.

Moreover, it is essential to note that the FAADC2I system incorporates the EPLRS as an integral component of its system design. Therefore, FAADC2I cannot complete development, testing, production, nor fielding without EPLRS. Under these conditions, slips in the EPLRS schedule will drive the FAADC2I schedule.

ARMY TACTICAL COMMAND AND CONTROL SYSTEM (ATCCS)

Question. The Army Tactical Command and Control System (ATCCS) is a composite of five battlefield functional control systems—Maneuver control; Fire support; Intelligence/electronics warfare; Air defense; and Combat support services. When will the master plan for the system engineering and integration of the ATCCS system be completed?

Answer. A major challenge of the ATCCS program is to manage it in a systematic manner. Implicit in this challenge is the recognition that the Army cannot field, all at once, a system as large as the ATCCS. PEO CCS has formulated a block approach that allows system fieldings in increments, allowing us to build on field experiences, and evolve the objective system over time. We are currently in development with the initial "blocks" of the system and plan to concentrate on the integration of these systems with each other, and to begin the planning of the succeeding blocks. The Master Plan will document our current ATCCS configurations, define a Target and Objective system, determine implementing details for transitioning to the Target system, and determine the requirements over time necessary for the Objective system. It must be emphasized that the current ATCCS programs are solid programs that solve many battlefield deficiencies and should be fielded as soon as possible. The Master Plan is our plan for the future that will allow us to have an orderly, efficient transition to the Target and Objective systems. The SE&I contract is currently in source selection with a contract award scheduled for September 1989. The Master Plan will be provided in increments with the first increment due 60 days after contract award. The last increment is due 300 days after award with intermediate increments between these two deliveries.

Question. What level of procurement funds will have been committed to the various components of ATCCS before the system engineering and integration master plan is completed?

Answer. The two ATCCS nodes currently expending procurement funds are the Maneuver node and the Intelligence node. These programs were initiated in the FY 1987 and prior time period and will be the initial fieldings for these important nodes. The Maneuver Control System procurement for the Mil Spec and Non-developmental (NDI) terminals was fully approved by Congress with recommendations for early fieldings to gain experience in Command and Control. All systems have been procured and fieldings are underway. Funds expended in FY 1989 and prior are $300 million. The All Source Analysis System—Limited Capability Configuration (ASAS LCC)—has also been procured with $156 million in FY 1989 and prior procurement funds. This initial C2 system of the Intelligence node will be deployed and tested at FT Hood, TX in FY 1989/1990.

An additional $24.3 million was spent for the procurement of the LTACFIRE system to be used by our Light Divisions. This procurement was directed by Congress. We have also spent $28.9 million of FY 1988 funds for the initial purchase of Common Hardware/Software (CHS) as approved by Congress.

Question. What is the urgency of proceeding with the acquisition of hardware for ATCCS prior to the completion of the master plan?

Answer. The initial and final portions of the Master Plan will be in place before any large procurements of common hardware/software (CHS) are made. However, it must be emphasized that the Master Plan and other portions of the SE&I program are designed to assist in the integration of the total ATCCS network and that the importance of these systems in making significant contributions to each of their Battlefield Functional Areas has been determined.

Question. What technological risks are associated with procurement of the hardware prior to completion of the master plan?

Answer. There are no technological risks associated with the procurement of the hardware. Each nodal system utilizing the Common Hardware/Software (CHS) will enter full-scale engineering development followed by full testing with ASARC and DABs conducted prior to any procurement decisions. These procurement decisions are all scheduled after completion of the Master Plan.

Question. What is the current IOC (Initial Operational Capability) for a fully integrated ATCCS system?

Answer. We plan to have all five nodes operating in an integrated mode in FY 1993 at FT Hood, TX. Individual capabilities will exist prior to this time with each additional system adding more capability to our Command and Control System. As indicated previously, the Maneuver Control System (initial hardware) will be fielded in FY 1990, ASAS (LCC) in FY 1991, AFATDS (Block 1) in FY 1992, FAADC2 (Block 1) in FY 1993, and Combat Service Support (Block 1) in FY 1993.

ADVANCED FIELD ARTILLERY TACTICAL DATA SYSTEM (AFATDS)

Question. One of the five components of the Army Tactical Command and Control System (ATCCS) is a program called AFATDS. It is an $800 million program being developed as the future automated fire support command and control system for Army artillery. For FY 1990 the Army is requesting $37.5 million for AFATDS R&D and $7.4 million procurement. The AFATDS program milestones for the concept evaluation phase (CEP) of software development have slipped due to technical and management problems. Originally the CEP for software development was a 33 month effort to be completed in February of 1987. CEP is now expected to last 60 months and be completed in April 1989. General Harris your statement says that "AFATDS software has passed the formal qualification test at the contractor facility." Were any software deficiencies discovered during this phase of testing (referring to FQT)?

Answer. Yes. Anomalies encountered during testing no matter how slight result in a software trouble report (STR). We generated 31 STRS as a result of the FQT. STRS are graded according to severity and assigned a numerical priority code to identify the seriousness of the problem. CECOM policy provides guidance on the number of STRS by severity which are allowed in order to declare the test successful. The following summarizes the FQT:

Priority	Severity	Allowed	Experienced
1	System crash or safety hazard	none	none.
2	Failure to perform a mission	none	none.
3	Problem severe enough to prevent performance of a mission essential function; however, an alternate means (called a "workaround") exists which allows the mission to be accomplished.	112	16
4	Nuisance or minor operator inconvenience	224	15
Total STRS		336	31

Question. Is the next phase of CEP testing still on schedule for March/April 1989?

Answer. Yes. The final phase of CEP is the Concept Evaluation and is scheduled for March 20–April 21, 1989. The equipment was delivered to Ft. Sill, OK, on February 13, 1989, according to schedule. Installation and checkout has been completed. The Test Readiness review was conducted February 24, 1989. The Pilot test was initiated on February 27, 1989, according to schedule. The Concept Evaluation began March 20, 1989 on schedule. The software is currently performing satisfactorily.

Question. What performance criteria will be set up to evaluate CEP?

Answer. Fourteen issues have been identified for evaluation during the CEP. Since this is a "Concept Evaluation," there are no "pass/fail" criteria. The "system" has already "passed" developmental testing during FQT; otherwise it would not have been released to go to Ft. Sill. Performance of the "boxes" has already been proven and documented. We have already demonstrated that the modular software works and, that the system interoperates with other fielded systems. Of course, response times, net loads, etc., will be measured under various configurations and conditions during the CE; however, most of the CE issues are focused on doctrinal items such as optimum configuration, organizational structuring, continuity of operations (CONOPS), survivability which really pertains to "how to best USE the "system" as opposed to whether or not it works. Other CE issues include training impacts, man-machine interface, etc.

Question. When will developmental testing be complete?

Answer. The CE, the final developmental test, is scheduled to conclude on April 21, 1989. Developmental testing has already been completed for the CEP Phase. It was completed when the software passed the FQT and was frozen as a baseline on January 11, 1989. This event, by definition, prohibits any changes to the software, and therefore precludes any requirement for additional software testing. A finished product (for this Phase—not to be confused with a system which is ready for fielding) was delivered to Ft. Sill, ready to undergo Concept Evaluation.

Question. The Army is requesting $7.4 million in procurement this year for AFATDS. It is also requesting $37.5 million for AFATDS F&D funding for FY 1991. General Harris your statement says that "$7.4 million will continue upgrade and conversion of software to ADA." Why is procurement funding necessary for software work which is normally R&D funded?

Answer. The software work to be accomplished with procurement funding is not new development. The funding is to support conversion of MLRS software to Ada to allow it to be transported over to run on ATCCS CHS. Procurement funding was determined to be the proper appropriation.

Question. What amount of contractor effort is necessary to complete the CEP phase? How will this effort be funded?

Answer. Only minor contractor effort (3 persons) is needed to support completion of the CEP phase. This contract effort is already funded within the current CEP contract.

Question. When do you expect to issue a contract for the next phase of development?

Answer. A new contract for Full Scale Development of a Block 1 capability will be awarded after completion of the ASARC, DAB and Congressional approval. Congressional approval is anticipated during 4th QTR FY89 with the award of a new contract in 1QFY90.

Question. What type of contract will it be?

Answer. Cost plus with Incentive Fee and Award Fee features.

Question. What is the estimated cost?

Answer. The cost of the Block I capability is $41.82 million, and we have an option for Block II costing $24.26 million.

Question. Describe the AFATDS P3I strategy and its cost.

Answer. The P3I strategy will be to design the software and procure hardware that is flexible enough to allow for technological insertions, i.e., artifical Intelligence, enhancement to MANPRINT, improved software features, improved information processing emerging changes to CHS HW/SW; and finally to supplement the normal software maintenance effort to incorporate new doctrine and weapon systems in response to changing threat environments.

Cost to support P3I has not been established to date. R&D dollars are programmed in EPA years to accommodate the P3I program.

ALL SOURCE ANALYSIS SYSTEM (ASAS)

Question. ASAS is another component of ATCCS. It is the Army's portion of the Joint Tactical Fusion Program being developed with the Air Force to automate the correlation and analysis of high volumes of time sensitive intelligence. The FY1990 request before the Committee is for $71.4 million. In order to field this system incrementally the Army has developed a limited configuration capability (LCC). A production contract for the LCC system was awarded in February 1987. Field testing of the LCC system is scheduled to start in June 1989. Is production of LCC hardware and development of LCC software on schedule? Is the full-scale production decision still scheduled for October 1991?

Answer. Yes. The ASAS Limited Capability Configuration (LCC) remains on schedule. The LCC is being delivered to Fort Hood, Texas in April, 1989. User personnel from III Corps and 2nd Armored Division will be trained during the summer months and TRADOC will conduct Force Development Test and Experimentation (FDT&E) in November, 1989. The system Initial Operational Test and Evaluation (IOT&E) will be completed in November 1991. The Milestone III production decision is scheduled for January 1992.

Question. When does the Army expect to begin using the ATCCS common hardware for the ASAS program?

Answer. The security constraints within which the ASAS must operate include Top Secret-Sensitive Compartmented Information (SCI) and TEMPESTED hardware, to include the analyst's workstation. The ATCCS workstation is not currently TEMPESTED and does not meet the stringent requirements imposed as ASAS. Additionally, the Army Secure Operating System (ASOS) being developed by the PM, CHS, operates at the collateral level only. Until these issues are resolved, the primary ASAS hardware components will not be replaced by common hardware. We will examine other candidates for designation as common hardware items. For Example, the AN/TYQ-37(V), the Portable ASAS/ENSCE Workstation (PAWS), provides a significant capability to perform a variety of functions which can be beneficial to other elements within the Army. The PAWS, as a designated common hardware item, can fill the need for the user whose requirements calls for a more robust and powerful "high end" portable workstation optimized for the graphic display of battlefield information.

Additionally, within the IEW Battlefield Functional Area (BFA) the intelligence community will utilize ATCCS CHS to provide internal command and control (C2) functions at all levels from Battalion to Corps. Selected ASAS functional software applications packages are projected for porting into CHS workstations for use at brigade and battalion intelligence staff (S-2) levels.

Question. The Committee understands the ASAS software was originally developed in Fortran and that current Army plans call for its conversion to the ADA programming language. When does this conversion program begin, and how long will it take?

Answer. Prior to providing answers to specific questions in this arena, it is important to understand the timeframe and environment within which earlier decisions were made. In FY84, ANSI FORTRAN-77 was chosen as the interim high-order language for the ASAS/ENSCE Baseline System. The language selection process was based on a consensus among project personnel as well as advice from Jet Propulsion Laboratory (JPL) and other organizations. ADA was found superior to all other existing procedural high-order languages in its features for supporting good software engineering practice. But there were significant risks associated with committing to Ada at this time. The most critical were the lack of available programmers with Ada experience and immaturity of the Ada compilers. However a progressive transition strategy to Ada was implemented by the Joint Tactical Fusion Office (JTFO), to include an Ada compatible PDL, a planned prototype development of selected modules, and application of a software tool set in accordance with Ada requirements. This approach was coordinated with and concurred in by the Under Secretary of the Army in July 1984. The resulting strategy encompasses the following key points. FORTRAN will be used through the full scale engineering development. For post full scale development, Ada will be used for all new applications. For enhancements to existing functionality, an analysis will be performed to determine the technical and budgetary feasibility of implementing the enhancement in Ada instead of staying with FORTRAN. The emphasis will be on using Ada. For enhancements resulting in a significant amount of breakage of existing code, the complete software module will be re-designed and written in Ada.

As part of ongoing efforts, the JTFO sponsored a series of ASAS Evolutionary Development Program Ada Industry Days from January through March 1989. Forty two companies provided presentations on Ada tool sets, database software, hardware and their lessons learned in the Ada environment. The JTFO will incorporate those lessons learned into the evolutionary development program.

ASAS software development in the Ada program language will be initiated in FY91 as part of the software evolutionary development block upgrade program. Code for new functionality will be developed in Ada. For software applications where existing functionality is being enhanced, the decision to convert to Ada will be made only after careful analysis on a case by case basis. Where possible, legacy FORTRAN 77 code will be retained and integrated within the new Ada software in order to provide a continuing flow of enhanced functionality to the field while simultaneously deriving the life cycle benefits from Ada implementation. This evolutionary transition is based upon the premise of fixing problems and enhancing the software capability as opposed to an "across the board" conversion which may not optimize the use of available funds. This procedure will span the entire Evolutionary Development cycle.

Question. What is the total cost estimate of the conversion program?

Answer. The out-years portion of the Evolutionary Development plan is currently in preparation; accordingly, the cost of the conversion program can not be projected at this time. However, in my previous answer I stated that there will be no Ada conversion for conversions sake. The strategy is to minimize cost but move to Ada in a sensible, cost effective manner.

Question. Would ASAS be fully interoperable with the other nodes of the ATCCS if its software was not converted to ADA?

Answer. Yes. Through the use of agreed to common interface specifications, protocols, and data exchange formats, ASAS will be fully interoperable with the other ATCCS nodes.

FORWARD AREA AIR DEFENSE COMMAND & CONTROL (FAADC2)

Question. FAADC2 is a $1.5 billion computer based system to coordinate weapons, radar information, and data devices into a functional air defense system. What is the status of FAADC2 development? Address: the basic C2 system, the ground based sensor, the aerial sensor, and aircraft identification.

Answer. Basic C2 system—Software development and system integration is ongoing. The prime contractor has successfully completed System Design, Subsystem Design and Preliminary Design Reviews. Software coding and unit testing is scheduled to begin in April 1989. System level testing is projected for 2QFY92 through 1QFY93, with the First Unit Equipped (FUE) occurring in 3QFY93. Due to funding decrements, the Deputy Secretary of Defense has directed a restructure of the program to field an initial capability system by 3QFY93.

Ground-Based Sensor—The proposal/candidate evaluation for the Non-developmental Item (NDI) prototype is ongoing. A three dimensional radar that addresses the full range of user requirements is currently being tested to determine its ability to effectively track both high performance and rotary-wing aircraft. Contract award is projected for August 1989.

Aerial sensor—This program is now identified as the Masked Target Sensor Program. The program is currently unfunded and the supporting requirement documentation is in the process of being approved.

Aircraft identification—Non-cooperative target recognition (NCTR) devices are currently planned for incorporation into the Ground-Based Sensor system as a Pre-Planned Product Improvement (P31) modification to FAAD. The initial device is currently under full scale development. One NCTR technology is undergoing Technical and Operational testing which will allow production to begin in FY 1990. Additional NCTR devices will begin full scale development in late FY 1989 and early FY 1990. Contract award for full scale development of the cooperative device (Mark XV IFF) occurred in 2QFY89.

Question. What is your acquisition strategy?

Answer. The acquisition strategy for the basic C2 program includes implementing a full scale development phase to create and test an initial capability system, fielding of this initial capability on objective hardware, developing and testing of a P31 program to address additional capability, and finally combining the initial system with the P31 program to deploy a fully integrated objective system.

Question. How concurrent is your program? Explain why you requested $48 million in FY 1990 for procurement of Ground Based

Sensors while needing $72 million in FY 1990 and $76 million in FY 1991 for R&D of the basic system.

Answer. Twenty-two months of lead time is required to order 13 NDI production Ground Based Sensors for delivery in FY 1992 to support FAADC2 technical testing. During that same 22 month period, full scale development of the basic C2 program (software and system integration) will be accomplished to ensure that a complete FAADC2 system is available for FY 1993 operational testing.

Question. When will development and operational testing of the system be complete?

Answer. Development and operational testing for the FAADC2 system will be completed in FY 1993.

Question. Under your five year budget plan, how much equipment will have been procured by this time?

Answer. During the period FY 1990-94, the Army will procure one development system, one test system, fixed and mobile training base systems, plus systems for three armored cavalry regiments (ACRs), nine heavy divisions and one light division. Each unit set will consist of a combination of Army Command and Control Systems-Common Hardware/Software (ACCS-CHS) equipment (processing, display, storage devices) contained in Standard Integrated Command Post Shelters (SICPS). From FY 1990-94, the Army will purchase ACCS-CHS equipment for FAADC2 as follows: 2094 Handheld Terminal Units (HTU); 85 Portable Computer Units (PCU); and 172 Transportable Computer Units (TCU).

Question. What is the development status of the Government Furnished Equipment programs (such as ACCS, JTIDS/EPLRS, etc.) that must be provided to the FAADC2 contractor?

Answer. Development status of the Government Furnished Equipment (GFE) is as follows: ACCS CHS—an NDI program with common hardware and software is available now. JTIDS/EPLRS—currently in full scale development with a projected completion date that supports the FAADC2 operational testing schedule.

Question. What is the total cost estimate for FAADC2?

Answer. The life cycle cost (in escalated dollars) for FAADC2 is $2.4 billion. This does not include the Ground Based Sensor or the Masked Target Sensor programs.

Question. Will the first fielded system have sensors that are fully survivable against the anti-radiation missile threat?

Answer. Assessment of the survivability against the anti-radiation missile is in-process. The degree of survivability will be available NLT 4QFY89.

Question. What is the performance of the FAADC2 contractor?

Answer. The FAADC2 contractor has experienced program delays and is in a cost growth condition due to an underestimate of the proposed effort. Management and programmatic changes by the contractor have been implemented and a stronger management presence is now in place up through the corporate group level. Additionally, a strong government oversight program has been established to frequently review contractor performance. FAADC2 is currently on schedule for fielding FY93.

Question. Provide for the record a breakout of the FAADC2 contract by appropriation, fiscal year, and line item.

Answer. The requested information follows: RDTE Appropriation, Program Element 64741A.

Fiscal year:	*Millions*
1986	$9.4
1987	18.0
1988	30.9
1989	15.6
1990	7.7
Total	81.6

Question. What is the current contractor EAC?

Answer. The contractor's estimated cost at completion (EAC) is $114 million as reflected in the December 1988 Contractor Performance Report. The original contract was awarded in September 1986 in the amount of $58 million, modified in November 1987 to total $82 million, and the governments estimate to complete the FAADC2 effort, to include additional work that remains to be contracted to support equipment fielding, will total $199 million.

JOINT TACTICAL COMMUNICATIONS PROGRAM (TRI-TAC)

Question. The Army's system for communications at Echelons Above Corps (EAC) is known as TRI-TAC Block III. This program constitutes the Army portion of the Joint Tactical Communications Program. The budget request before the Committee for FY 1990 is $22.1 million. These funds will be used to achieve a minimum interoperability between Corps equipped with Mobile Subscriber Equipment and theater level forces in Europe.

The FY 1990 budget request represents a significant downsizing of the TRI-TAC program. By way of comparison the FY 1989 budget request was $112.4 million.

Can you explain the reason for the large decrease in TRI-TAC funding for FY 1990?

Answer. The Army was forced to make some tough choices in the preparation of the FY 1990 and FY 1991 budget request. The TRI-TAC Program was driven down to a minimum essential funding level in order to insure availability of funding for higher priority tactical communications systems, such as Mobile Subscriber Equipment (MSE) and Single Channel Ground and Airborne Radio System (SINCGARS).

Question. Does your FY 1990 and FY 1991 budget request represent an executable program for TRI-TAC?

Answer. The TRI-TAC Program is executable at the requested funding levels in FY 1990 and FY 1991. We intend to exercise competitively awarded priced options and buy NDI items with existing acquisition plans and contracts.

Question. In your statement you mention that "The Army is reevaluating proposals for the architecture of EAC Communications Upgrades for the remainder of the Army."

Does this mean the Army is considering alternatives to the TRI-TAC system for EAC communications?

Answer. For clarification, TRI-TAC is a generic name for a family of digital communications equipment used by the joint Services. TRI-TAC is not a system, as such.

In response to your specific question, the TRI-TAC equipment will be the "backbone" of the Army's EAC/theater communications system for many years to come. Because the TRI-TAC equipment was developed several years ago, it now needs upgrades in order to interoperate fully with new systems. So we are reevaluating the architecture to determine the most effective and affordable way to upgrade equipment and networks to bring about full interoperability in all theaters.

Question. What would be the impact for EAC communications interoperability with other services if the Army were to discontinue its portion of the TRI-TAC program?

Answer. The major impact results from the lack of research and development (R&D) funds. Without R&D funding, we will be unable to develop the hardware and software upgrades which are necessary to maintain interoperability with existing, new and future systems in all services.

MILSTAR SATELLITE TERMINALS

Question. The Army is procuring satellite terminals to operate with the new MILSTAR satellite system. The MILSTAR terminals are referred to as SCOTT. What is the current status of the Army's MILSTAR satellite terminal program?

Answer. The program is fully funded to procure 207 terminals in the POM (FY 1990-94). The 207 Development model terminals plus the 15 Full Sale Engineering Development Models (FSED) will meet the JCS requirement for 222 Joint/CINC requirements.

Question. What slippage has occurred in the SCOTT program?

Answer. The program had been scheduled to begin IOT&E in November 1988 but was slipped to January 1989 and subsequent to 21 August 1989.

Question. Specifically, what has caused any slippage?

Answer. The slippage has been equipment related. The prime contractor (Magnavox Corp) is very dependent on material/equipment provided by sub-contractors. Some of the terminal components were delivered to Magnavox late.

Question. What additional schedule risks are there?

Answer. The program is scheduled to begin IOT&E on 21 August 1989, complete IOT&E November 1989, conduct ASARC in February 1990 and Milestone III with production contract award March 1990. This schedule is at risk if IOT&E does not begin 21 August 1989.

Question. Are you confident of meeting the current schedule?

Answer. The 21 March 1989 Quarterly Review revealed that the program will meet the current schedule.

Question. Provide for the record the Army's current procurement profiles for SCOTT terminals?

Answer. The procurement profiles for SCOTT terminals follows:

[Dollar amounts in millions]

	Fiscal year—						
	1989	1990	1991	1992	1993	1994	Total
Procurement (Hardware Only)	36.3	38.6	71.8	93.8	80.3	60.9	381.7
Terminal Qty	12	16	34	58	49	38	207

Question. What is the Army's current inventory objective for MILSTAR terminals?

Answer. To procure 207 Development Model terminals and 15 FSED terminals to total 222 terminals to meet the JCS validated CINC/JOINT requirements.

Question. What, if any changes, have there been in the Army's inventory objective for MILSTAR terminals?

Answer. There have been no changes since the OSD Program Budget Decision 110.

Question. Certain non-Army users also have a requirement for the SCOTT Terminal. Will these non-Army users require a "vanilla" SCOTT terminal or will they require a modified SCOTT terminal?

Answer. The Army is building a standard terminal; however, service unique requirements may result in various methods of packaging the terminal (i.e., the Marine Corps has 56 unfunded terminal requirements which will use different vehicles, generators and shelters than the Army buy).

TACTICAL ARMY COMBAT SERVICE SUPPORT COMPUTER SYSTEM (TACCS)

Question. TACCS is a commercial general purpose computer in a "ruggedized" box for use by ground combat forces for wartime personnel, finance, and logistics applications. General Harris, your statement indicates that the Army has followed Congressional direction to give one-half of the TACCS computers to Army Reserve units which make up half of the Army's total manpower. Do they like the equipment?

Answer. Feedback from Reserve Component (RC) units concerning TACCS has been very positive.

Question. Why did Congress have to direct you to do it?

Answer. Prior to FY 1988, TACCS fieldings were generally scheduled according to Department of the Army Master Priority List (DAMPL) sequence. The order of precedence in the Master Priority List is developed by taking into consideration force packaging, missions and functions of units, deployability status plus other similar type factors, and therefore list most active Component (AC) units ahead of RC units. I assume Congress must have felt this process did not provide TACCS systems fast enough to the RC.

Question. If Congress were to drop its legislative requirement in FY 1990, would the Army continue to allocate TACCS to the Reserves on a "fair share" basis for the duration of the program? Would that mean a 50/50 split?

Answer. Yes to both questions. The Army has already developed a FY 1990 TACCS fielding plan which continues the 50/50 fielding scenario. During FY 1991 and out, over one-half of the TACCS will go to RC units.

Question. How many Reserve units have TACCS computers today? How many more are planned to receive them?

Answer. As of today, 621 Reserve Component (RC) units at battalion through theater level, have been fielded TACCS computers. An additional 2,015 RC units are currently planned to receive TACCS.

Question. In the System Decision Memorandum (SDM) on the RCAS system dated August 21, 1987 from the Assistant Secretary of Defense (Comptroller), the Army was directed to separate the TACCS system (which is a "go to war" computer for all Army combat units) from the RCAS system (which is the Reserves "Peacetime and Mobilization" system). OSD's philosophy was endorsed by Congress as well. Is your fielding of TACCS to the Reserves in strict compliance with OSD and Congressional direction?

Answer. Yes it is.

Question. How do Reserve units use TACCS systems today?

Answer. Currently the standard Army software applications are utilized for full time support of property book accounting, maintenance and retail supply functions. Additionally, those applications, as well as the personnel, medical and ammunition applications, are used today for training.

Question. How will they use TACCS systems once RCAS is fielded?

Answer. When RCAS is fielded, TACCS will be used for training purposes only. Upon mobilization, RC units will deploy with their TACCS computers.

THEATER ARMY MEDICAL MANAGEMENT INFORMATION SYSTEM (TAMMIS)

Question. Army TAMMIS is a theater medical computer system for ground combat forces whose life cycle cost is estimated to be $255 million. What is the requirement for this system?

Answer. TAMMIS directly supports Army medical personnel in their wartime missions of transporting, treating, and tracking patients at field medical activities worldwide. It includes peacetime functions to support readiness missions while in garrison and during training exercises, thus enabling a rapid transition from peace to war. TAMMIS is developed and tested and will be fielded after Milestone III review. TAMMIS system requirements are the result of studies conducted in 1979 by the Army Academy of Health Sciences. In 1981 the TAMMIS MENS was signed confirming the need for an automated information management system for field medical units.

Question. What is the acquisition strategy? Does the Army plan to follow the procedures of OMB circular A-109, which requires government agencies to let industry decide how best to meet requirements at the lowest cost?

Answer. TAMMIS has been developed and is scheduled for fielding in 4QFY89. A 1983 competitively awarded contract to National Data Corporation fulfilled its major development requirements. When this contract terminated on 30 September 1988, TAMMIS had successfully completed three of the four phases of system life cycle management: Concept Development, Definition and Design, and System Development. In September 1988, a task order was executed against a competitively awarded contract with Innovative Technologies, Incorporated (ITI)/Flight Safety Services (FSS) to develop various instructional packages to support the fielding of TAMMIS. An additional statement of work was executed against another competitively awarded umbrella contract between Army Software Development Center-Huachuca and UNISYS for the development of engineering change proposals (ECPs) for the fielding of TAMMIS. TAMMIS will be fielded on Army Standard Militarized Tactical hardware. Hardware for TAMMIS will be provided under competitively awarded contracts for TACCS, ULC, and CTASC-II.

Question. Defense Department regulations require automated information systems whose costs exceeds $100 million to be reviewed by OSD's Major Automated Information Systems Review Council. When is the review of TAMMIS currently scheduled?

Answer. Army MAISRC III is scheduled for 4QFY89. OSD Review will be scheduled immediately following the Army MAISRC.

Question. What internal Army oversight reviews have been made of the TAMMIS requirement and acquisition strategy?

Answer. In October, 1987 TAMMIS officially came under PEO MIS oversight. Prior to this time, TAMMIS acquisition strategy was reviewed and approved in 1983 and 1985 by the ASA(FM) IAW the Army's Automated Information System Life Cycle Management practices at that time. TAMMIS will be scheduled for Army MAISRC review in the 4QFY89.

Question. Section 8070 of the fiscal 1989 Appropriations Act prohibits expenditure of funds on automated information systems which have not successfully completed oversight reviews required by DOD regulations. If Congress were to appropriate the $32 million you requested in FY 1990 for TAMMIS, could they in fact be spent?

Answer. The appropriate review required by DOD regulations will be conducted. TAMMIS MAISRC review is scheduled for August 1987 to ensure the necessary approval for expending the requested FY 1990 funds.

Question. Provide for the record a breakout of the Exhibit 43-A-1 exhibit on TAMMIS by appropriation, fiscal year, and line item.

Answer. A breakout of Exhibit 43-A-1 on TAMMIS by appropriation, fiscal year, and line item as they appear in the Procurement Backup Book is as follows. As footnoted on the TAMMIS Exhibit 43-A-1, the Other Procurement, Army (OPA) funding consists of procurement dollars also included in Exhibits 43-A-1 for Tactical Army Combat Service Support Computer System (TACCS) and Corps/Theater ADP Service Center (CTASC II). TAMMIS funding is also included in the Unit Level Computer (ULC) procurement line. Therefore, there is no procurement line item specifically for TAMMIS since the system runs on the TACCS, CTASC II, and ULC hardware.

[In millions of dollars]

	Fiscal year—					
	1989	1990	1991	1992	1993	1994
OPA, cap, invest. pur. of hardware	2.6	22.6	18.8	14.0	.1	.1
TACCS (line 133)	(2.6)	(2.8)	(2.4)	(1.6)	(.1)	(.1)
CTASC II (line 132)	0	(5.0)	(5.0)	(2.0)	0	0
ULC (line 141)	0	(14.8)	(11.4)	(10.4)	0	0
MPA, Personnel:						
a. Comp, benefits, travel	2.7	2.8	2.9	2.9	3.0	3.1
b. Workyears	42	40	40	40	40	40
OMA, Pur of software/other	0.9	0	0	0.6	.2	.3
Personnel:						
a. Comp, benefits, travel	1.5	1.4	1.3	1.3	1.2	1.1
b. Workyears	31	33	33	33	33	33
Equipment rental, space, and other:						
a. Space	.1	.1	.1	.1	.2	.1
b. Supplies and other	.1	.3	.3	.3	.3	.3
Subtotal	.2	.4	.4	.4	.5	.4
Commercial services:						
a. Operations and maintenance	0	1.4	1.4	1.3	1.4	1.4
b. System analysis/programing	5.0	3.7	3.1	2.6	3.1	4.0
c. Studies and other	.1	0	0	0	—0—	0
Subtotal	5.1	5.1	4.5	3.9	4.5	5.4
Total obligations	13.0	32.3	27.9	23.1	9.5	10.4

HEADQUARTERS AUTOMATION

Question. The Army is requesting $67 million for hardware alone in the next two years for "headquarters automation".

What is your requirement for this level of computers to support administrative headquarters functions?

Answer. The "Headquarters Automation" budget line is a grouping of systems that support Army headquarters organizations worldwide. The systems included in this budget line for FY 1990 and FY 1991 are:

HQDA ADPE provides for information management support to HQDA. Includes mainframe support, decision support systems (DSS), HQDA agency level (departmental) hardware, and other ADP equipment. The departmental hardware sets provide intra-agency LANs and minicomputers to host departmental DSS. A major mainframe upgrade purchase is essential to prevent mainframe support to the Army's headquarters from becoming so overburdened as to be incapable of performing essential missions. Current planning is that up to $3.4 million of FY 1990 HQDA ADP funds will be used for mainframe upgrade.

IG Worldwide Network (IGNET) provides the capability for Army IG's world-wide to identify systemic problems. IGNET will include 137 Active Army sites, 54 ARNG sites, and 80 USAR sites. IGNET provides Army IG's at every level capability to integrate data from various sources, analyze data in a common way, and provide Commanders in-depth problem identification.

Modern Aids to Planning (MAPP) will provide the USCINCEUR and his staff the ability to automate the EUCOM war planning process. MAPP provides the war planning analysis and simulation portion of the Joint Operations Planning and Execution System (JOPES) decision support system and interface to JOPES equipment (WIS, DODIIS, NPES).

CIDC Info System implements management information systems in direct support of the Army's criminal investigation and Secretary of the Army directed fraud investigation program. These systems will be integrated and operate at all levels from criminal investigative field offices to the command headquarters.

Army Model Improvement Program (AMIP) consists of an integrated family of automated combined arms combat models and supporting data bases which enhance Army's ability to optimize force structure decisions, program equipment acquisition and distribution and adjust to tactical planning against changing threat scenarios.

HQDA Decision Support System (DSS), managed by the USA Decision Systems Management Agency, is not an administrative function, but rather a platform for integrated decision support systems used by the Army Staff in the HQDA decision making process. The Decision Systems Management Agency is responsible for the integration of these systems. The decision support models provide cooperative processing and interoperability across a network which includes a corporate computer supporting departmental computers, which in turn serve intelligent work stations—all using standard utilities and integrated, often common, application software—and all linked with modern communications. These systems (developed and controlled by the functional Army Staff proponent) assist decision makers at strategic, policy, management, and operational levels.

Corps of Engineers Automation Plan (CEAP-IA) is an acquisition program to competitively replace general purpose computing capability at Corps of Engineers' districts and divisions. Of the total OPA investment of $11 million, approximately $6.9 million will be used to support headquarters' functions such as finance and accounting, personnel, procurement, project management systems for MILCON and DEH projects, and upward reporting to HQUSACE and/or DA elements.

USAFAC Mainframe is a program to replace the obsolete equipment at the U.S. Army Finance and Accounting Center (USAFAC). The size of the effort is based on current workload and estimated growth for the next 5 years.

Enhanced C2 for HQDA is a classified program. A briefing can be provided upon request.

Question. What is the total cost of your headquarters automation program, considering both hardware and O&M funded support costs? Provide a breakout for the record by appropriation, fiscal year, and line item.

Answer. The procurement costs and the associated O&M for each of the projects are listed below:

[Fiscal years and in thousands of dollars]

	Procurement		O&M		Total
	1990	1991	1990	1991	
HQDA ADPE	11,929	2,249	0	1,587	15,765
IGNET	1,087	1,783	320	520	3,710
MAPP	495	396	0	20	911
CIDC	495	495	10	15	1,015
AMIP	2,372	2,674	500	500	6,046
USA-DSMA	1,977	2,179	0	100	4,256
CEAP-IA	4,052	6,936	0	0	10,988
USAFAC mainframe	13,690	8,618	0	4,500	26,808
HQDA enhanced C2	593	6,061	(1)	(1)	6,654

[1] This is a classified program. A briefing can be provided upon request.

Question. What savings will result from this level of investment?

Answer. Discussion relating to savings for each unclassified program follows:

HQDA ADPE—The mainframe upgrade planned for FY90 will provide increased processing power which will allow for the movement of a current HQDA mainframe to meet a critical requirement at the US Army Research, Development, and Acquisition Information Support Activity (RDAISA) at Radford, VA. This will eliminate the need to purchase a new mainframe at RDAISA at the cost of approximately $5 million. Congress mandated the reduction of the HQDA staff by approximately 400 spaces. The automation services (mainframe support, decision support systems, etc.) provided by HQDA ADP increase staff productivity, thereby allowing the HQDA staff to maintain the same level of effort at a greatly reduced manning level.

IGNET—Provides standardized support at all IG locations, Active, Reserve, and National Guard. This standardized end-user computing generates savings by cost avoidance. First, IGNET is a much cheaper technology (both in acquisition and sustainment) than the mainframe system it replaces. IGNET requires a lower skill level to operate and maintain. IGNET's decentralized data base and electronic mail to other IG sites and DAIG result in increased efficiencies and responsiveness to soldier needs. The standardization itself provides economies of scale and reduced interface requirements.

MAPP—Cost savings will be realized by the reduced manpower required to develop/validate EUCOM war plans. Automated war planning/analysis, HQ EUCOM connectivity to subordinate elements and JOPES implementation provide significant return on investment for MAPP.

CIDC—Procurement fraud investigative effort has recovered in excess of $115 million which was paid back to the U.S. Treasury by respective corporations. Currently, USACIDC has over 217 open procurement fraud cases totaling $142 million in potential loss to the government. Higher recoveries are expected in FY1990 and out years.

AMIP—Cost avoidance, not cost savings, will provide a significant return on investment. These models will provide Army force structure planners information for proper equipment acquisition/

distribution and proper force structure and efficient training of the force.

USA-DSMA—The Army has made a significant investment in a computer plant, network, and applications software. The program projects that investment by insuring that the hardware, operating software, and applications software and user support are kept current, responsive and reliable. The Decision Support System and the supporting automation improve the effectiveness and efficiency of Army managers in setting distribution policy and guidance. The decisions are the cornerstone of good management in the Army. The investment already expended and planned for the future in software development must be supported by the processing power and software that will allow these managers to retrieve, display and analyze this data.

CEAP-IA—A cost avoidance of approximately $42 million will result over the estimated 7 year life cycle.

USAFAC Mainframe—This project does not directly provide an attributable savings but rather a cost avoidance. The continued reliance on the installed equipment will result in longer more frequent hardware failures. Those failures will reduce support to mission functions and require greater cost in the functional area to fulfill that mission. Cost of maintenance and repair of installed hardware will increase as it becomes older and OEM support is cut back.

Question. What critical missions could not be performed if Congress denies this request for funds?

Answer. The impacts on critical missions if funds are denied by Congress are:

HQDA ADPE—Force developers in Army ODCSOPS will not be able to process and transfer classified data essential to force development efforts because FY 1990 procurement of secure Local Area Networks (LANs) for ODCSOPS will be delayed by at least 2 years. ODCSOPS will not be able to resource and correlate force structure to CINC war plans in an efficient manner. The capability of the warfighting CINCs to fight will be degraded. Essential Tier 1 mainframe upgrades will be delayed by at least 2 years and systems such as Forcebuilder, the Army Authorization Document System, etc., will not run to provide CINCs with the best possible force structure data. Mainframe support to Army budget and financial management systems will be degraded, causing decreased productivity and efficiency. Procurement of departmental minicomputers and minicomputer upgrades scheduled for FY 1990 will be delayed at least 2 years. This will slow or stop development of systems which are designed to allow HQDA functional proponents (DCSOPS, DCSPER, DCSLOG, etc.) manage their functional areas within HQDA and across the Army.

IGNET—Without this funding, the "Total Army" information sharing so critical to the performance of the IG mission would be severely damaged. Specifically, fielding of IGNET to Reserve and National Guard locations is scheduled to begin in FY 1990 with the system completely fielded in FY 1992. If funding is cut, fielding to Reserve and Guard unit will be delayed and the government may incur contract termination cost. It is essential that IGNET be fully funded to ensure that Reserve Component IGs have the necessary ADPE to perform essential mission functions.

MAPP—Reduction in MAPP funding will result in EUCOM force level commanders and their staffs having to rely on manual war plan development to keep pace with the modern battlefield and to execute Airland battle doctrine. Any decrement will preclude Army's providing JCS and analysis and simulation portion of JOPES.

CIDC—Negates procurement of CIDC main computer at the Crime Records Center. The Data General Eclipse Model 600 is the last operational computer of this type in the world. This machine handles 350,000 records checks a year. These checks are crucial to Army and DOD investigations. Excessive down time and the risk of long term or permanent system failure are costly. Additionally, the loss of these funds stops the development of the Automated Criminal Investigative Reporting System which is essential to successfully handling the increasing criminal and fraud, waste, and abuse investigative workload.

AMIP—Decrement will adversely impact the ability of Army force structure planners to optimize force and equipment levels. Timely feedback on the impact of force changes and equipment mixes, such as INF treaty impacts, will be impossible without the integrated combat echelon models.

USA-DSMA—The integration and synchronization across all functional areas will be lost. Access to current and reliable data will severely degrade the Army's top leadership decision making process and their ability analyze strategic alternatives. Reasonable assurance of the best decision at the right time will be critically hampered.

CEAP-IA—To deny these OPA funds would impair the PM's support to management and construction of MILCON and DEH program during peacetime and inhibit and place such support at extreme risk during mobilization. To continue in the current operational modes at military sites is not feasible because of expiration of DPAs and Congressional bans on leasing ADPE. Corps costs to other military customers would also increase proportionately. Support to scientific and engineering military research would be severely eroded, hampering Corps program efforts to maintain the engineer soldier in the field. Additionally research programs to determine construction as well as operation and maintenance requirements and costs for Army and Air Force garrisons around the world would be impacted. Efforts to develop new technologies which are now being investigated to improve the environmental quality at military and industrial facilities, including the military arsenals, depend heavily on these automation plans. The program to track the life-cycle history, needs, and costs for Army facilities would also be placed in jeopardy.

USAFAC Mainframe. Failure to fund would not result in an immediate mission loss. As the equipment degrades, the support will decrease. Maintenance of Army financial accountability and pay to military personnel will be extremely difficult and manpower intensive.

Question. For the record, please explain in detail the requirement, acquisition strategy, and funding by appropriation/fiscal/

line item for the Headquarters Department of the Army Decision Support System. Why is this urgent?

Answer. Functional users must be able to gain access to data and to capitalize on existing and future investment in software development. The increased demand for access to and development of decision support systems will necessitate expansion of this system. Emerging technology is focused on directly enhancing the individual's decision and communicating capabilities. Technology allows high speed transmission of data over local area and wide area networks. These technology improvements provide the opportunity to bring significantly enhanced management information power to the United States Army. Acquisition of software, hardware and software development efforts will be through competitive procurement actions.

SUPERCOMPUTERS

Question. The Army plans to spend over $200 million between fiscal years 1988 to 1994 on supercomputers. General Harris, please explain the Army's supercomputer program. How many do you have today? How many do you ultimately plan to buy?

Answer. The capability of the US Army to counter numerically greater military forces with superior military systems is absolutely dependent upon high-performance computing capability. Supercomputing technology is used by Army researchers to develop and design better weapons, combat, medical and information systems.

To address these issues, the US Army established an Army Supercomputer Program, to be managed by a Project Management Office. The program's objectives are to properly integrate, analyze, and propose cost effective solutions to the users requirements for advancing computing systems, and ensure that training, user support services, and networking are in place to effectively support the deployment of the systems.

Currently three Supercomputers are operating at two sites.

a. The first Army supercomputing center was established in December 1986 at the Ballistic Research Laboratory (BRL), Aberdeen Proving Ground, Maryland. The first system installed at BRL was a Cray X-MP/48 supercomputer. The second system, a Cray-2, was purchased and installed at BRL and became operational in July 1987.

b. The second Army computing center was established at the Tank-Automotive Command (TACOM), Warren, Michigan, In March 1988. The system installed at TACOM was a Cray-2.

c. The Third Army supercomputing center will be established at the Corps of Engineers, Waterways Experiment Station (COE-WES), Vicksburg, Mississippi, in 1st Qtr FY90. The acquisition of a fourth supercomputer system for this center is scheduled for contract award in May 1989.

d. In 1st Qtr FY90, the Army will establish an Army High Performance Computing Research Center (AHPCRC) at a competitively selected educational institution. The AHPCRC will emphasize research and development aimed at making more effective use of existing conventional supercomputers as well as work that anticipates advanced computing architectures of the future. In addition, the AHPCRC will play a prime role in consulting, training, and technology transfer to all Army researchers and other scientists performing Army sponsored research.

The Office of Secretary of Defense approved the Army's plan to acquire up to seven supercomputer systems. The ultimate number of supercomputer purchased will be based on the continuing needs of the Army balanced against the use of available resources. The Army will also be aggressively explore cost effective alternative technologies to satisfy user requirements in lieu of large scale conventional supercomputers.

Question. What plans does the Army have to require sharing of supercomputer resources between different Army organizations rather than allowing each to buy its own?

Answer. The Army concept was to purchase shared resources available to the entire community of supercomputer users. This concept is implemented by allocating resources by need and networking the available resources.

Senior HQDA scientific and technical advisors oversee the allocation of available supercomputing resources. This body assures sharing of supercomputing resources by periodically reviewing user requirements and allocating the systems' cycles based on priority of need.

To provide access to all Army supercomputing users, the Army is establishing the Army Supercomputer Network (ASNET), a high speed communications network. ASNET will provide a high speed backbone network, with wide bandwidth (TI) circuits connecting the Army supercomputing centers. Users are responsible for the equipment and circuits required to access the backbone network. This concept is, in essence, the concept used by the National Science Foundation for its highly successful network, NSFNET. Users with small requirements can access the resources using the services of the Defense Data Network.

Question. What statistics do you have concerning the percentage of capacity from the supercomputers you have already installed? Do they run at 100 percent utilization rates?

Answer. The Project Management Office for the Supercomputer Program, with industry assistance, reviewed the comparative efficiency of use of the available processor hours of Army supercomputers. Army supercomputing use was compared with usage at six other supercomputer sites, which were funded, in whole or in part, by the US Government. The major conclusions from this were:

a. Army supercomputing centers are supplying a reasonable percentage of supercomputing resources to its users in comparison to the other centers.

b. Army usage of available supercomputer hours is, on average, lower than that experienced at the other centers. Currently this rate is averaging 80 percent over the last several months at our most experienced center, the Ballistics Research Laboratory.

Studies of industry and government supercomputing centers indicate that, it takes first time buyers of supercomputers approximately two and one-half years to reach an efficient utilization level, unless they have been using a supercomputer service bureau extensively. The Army is currently on this "learning curve", and is following historical growth paths experienced by other Government agencies. Also, a 100 percent utilization of supercomputing resources is not desirable and should be avoided. Extremely high utilization rates of 90 percent or greater limit the efficient use of the resources and lower service to users. Such high rates are tangible reasons for purchasing additional supercomputing resources.

The Project Management office has focused its attention on several initiatives which are expected to improve use of Army supercomputing assets. First, is the installation of a high speed telecommunications network to support the Army research community. This network will provide a "backbone" of high speed circuits between Army supercomputer centers, link selected remote users to the Army supercomputer centers, and will incorporate the newest center, the Corps of Engineers at Waterways Experiment Station, as a node on the network when it becomes operational. Secondly, as a part of the Army High Performance Computing Research Center contract, the Army will be placing user support personnel at each center and at six remote sites to provide expert consultation to users in developing and optimizing applications. The first of these two initiatives facilitates access to the supercomputers, while the latter leverages our investment to better use the existing supercomputer resources. This will be accomplished by providing expert assistance and training the user community in using advanced computing.

Question. Explain the Army's university supercomputer initiative. What are your plans to foster competition in this acquisition in order to give each of the states an equal chance to win?

Answer. The Army released a Request for Proposal on 17 February 1989 to establish an Army High Performance Computing Research Center (AHPCRC) at a competitively selected academic institution. This acquisition is key to improving the Army's use of existing supercomputers and determining cost effective alternatives to satisfy future requirements. This is a three part requirement consisting of:

a. Research in high performance computing which will address issues appropriate to near term high performance computing, including current Army supercomputing needs, as well as long term issues, and will provide a basis for effective utilization of advanced computing techniques within the Army.

b. Acquisition of advanced computing systems to support the required research.

c. A support infrastructure which will provide operation and maintenance of the advanced computing systems, network management and control, and user support services. User support services will be provided at both the AHPCRC, and at existing and planned Army supercomputing centers and Army remote sites.

Competition is limited only in that the prime contractor must be either an educational institution or a consortium of educational institutions. The prime contractor may not subcontract any aspect of the research effort, except to other educational institutions or consortium of educational institutions. However, there is no restriction as to the type of subcontractor with respect to computer equipment, software in support of research, and the support infrastructure.

ARMY SUSTAINING BASE AUTOMATION PROGRAMS

Question. The Army spends a great deal on computers for the sustaining base—another way of saying Army bases. Much of that cost is O&M funded and not very visible to the Congress. General Harris, why is your statement so terse on this subject?

Answer. Automation programs are the topic of a hearing scheduled for 20 April. The main witness will be from OSD and will cover the topic DOD wide. I will be available as a backup witness. The bulk of my prepared statement focused on the specific topic of today's hearing. "Command, Control, and Communications", with its appropriate emphasis on tactical and strategic systems. I included some information on sustaining base systems for those members of the Committee who might not be aware of the scope of the Information Mission Area, or of the other programs under my purview which might be of interest to them.

Question. How much does the Army spend annually in all its appropriations on the sustaining base?

Answer. The Army plans to spend the following resources to operate, maintain, develop, field, and redesign automated systems for the sustaining base:

[In millions of dollars]

Appropriation	Fiscal year						
	1988	1989	1990	1991	1992	1993	1994
O&M, Army	1,505	1,356	1,441	1,479	1,182	1,193	1,223
Military pay	191	197	201	208	214	220	227
Procurement	115	105	104	102	258	211	250
Industrial fund	116	129	110	99	100	100	100
Research and development	95	85	99	97	94	94	93
O&M National Guard	65	92	73	61	8	14	30
O&M Reserves	36	76	55	58	51	51	53
Military construction	20	24	25	26	26	26	26
Family housing	2	5	5	5	5	5	5
Total	2,145	2,069	2,113	2,135	1,938	1,914	2,007

Question. What initiatives do you plan?

Answer. The Army will complete on-going modernization efforts and begin two new efforts, specifically, a competitive replacement of services provided by the Army Standard Information Management System (ASIMS) and an integrated capability for the Reserve Component, called the Reserve Component Automation System (RCAS).

Question. Under a project called "VIABLE", the Army awarded a billion dollar contract to run five shared regional data centers in CONUS to replace individual computers at CONUS Army bases. After the billion dollar investment, were the computers at the individual Army bases ever removed?

Answer. The VIABLE program was intended to replace the computing capability, which processed installation Base Operation (BASOPS) workload. These obsolete IBM computers were removed from the installations.

Question. How many of the claimed manpower space savings under the VIABLE project were actually achieved?

Answer. 604 manpower space savings were claimed, and 604 manpower space savings were achieved.

Question. What are your plans to replace the VIABLE system once the 10-year contract expires in 1992?

Answer. The Army fully intends to competitively replace the existing service contract. The Army views the OMB Circular A-109 approach as the way to satisfy these needs. Planning actions to replace VIABLE (now called ASIMS) have begun, and the Army is preparing for an OSD MAISRC Milestone V review later this year. A detailed acquisition strategy will be developed and refined at the appropriate life cycle management milestone.

Question. What are your plans to replace the base level computers which were supposed to be removed once VIABLE was installed?

Answer. The base-level computers associated with the original VIABLE workload were replaced. The current base-level computers at installations serviced by ASIMS (formerly VIABLE) do not process BASOPS workload. These capital assets are used by installation managers to improve internal controls and process installation unique management reporting systems. This present computing environment is a complex management and operational issue, which will be addressed as part of the MAISRC life cycle review of the program.

Question. Costs for either initiative could be very expensive. Why don't you have a single requisition which meets all the needs of Army base-level computing?

Answer. The Army will assess the requirements for base-level computing under one contract as it evaluates its acquisition strategy for the current computing environment and mission needs for continued ASIMS services. Information Systems Command is gathering and documenting these requirements as part of the ASIMS (formerly VIABLE) replacement program.

The installation processing requirements represent a large and complex set of requirements. Today, ASIMS (formerly VIABLE) supports installation sustainment and maintenance missions. However, installation processing requirements for day-to-day installation administration and decision support go beyond the original VIABLE missions. Increases to the mission scope to incorporate the day-to-day installations processing will be assessed as part of the MAISRC life cycle process. To minimize these risks the Army will incorporate the appropriate Federal Information Processing Standards in future acquisitions and thus provide for maximum competition by Industry.

Question. Your ADP exhibits show that the Army plans to spend over $100 million between FY 1990-94 on "requirements contracts" for large and medium CPUs and storage devices. This contracting technique allows any local commander who has sufficient funds to purchase equipment. Such a strategy, however, avoids the requirements scrub, planning, and discipline inherent in a normally structured acquisition for automated information systems—particularly the Army and OSD oversight reviews required by DOD regulations and our section 8070. Please explain your strategy.

Answer. The use of Indefinite Delivery/Indefinite Quantity (ID/IQ) and requirements contracts to acquire automation equipment is an accepted, in fact encouraged, acquisition technique within the federal government. The purpose of such contracts is to shorten the acquisition time for equipment that is common to most requirements and to save money for the government by buying them in large quantities. Regardless of whether or not the local commander has money to acquire such equipment, the requirement must be validated and approved through the Army's Information Management Planning (IMP) process—a review process that extends from the local commander through the major command to Headquarters, Department of the Army. Once validated and approved, the Army, to include the local commander, must adhere to other regulatory requirements including those in procurement/contracting and financial management before consummating the acquisition. Throughout the requirements planning, procurement/contracting, and financial management processes, the Army, to include the local commander, assisted by their information management staffs, must continue to follow the lifecycle process for the equipment and the established management oversight requirements determined by dollar thresholds and other criteria. If applicable, this may include going through the MAISRC process. In short, this is a structured acquisition that must follow the process for requirements scrub, planning, management discipline, etc., that is common to all other types of automated information systems acquisition.

Question. Provide for the record a breakout of the Army 43B exhibit for these requirements contracts by appropriation, fiscal year, and line item.

Answer. All funding associated with the referenced 43B exhibits for these requirements contracts is Other Procurement, Army (OPA). These procurement resources are found in P line 122, Information Processing Equipment, in the Army Procurement budget. The latest revision to funding requirements for these 43B exhibit items is as follows:

[In thousands of dollars]

43B Item	Fiscal year—					
	1989	1990	1991	1992	1993	1994
81	0	5,758	6,121	13,934	17,749	22,275
82	0	0	0	0	5,000	5,000
83	0	892	1,380	1,440	2,576	3,017

[Clerk's note.—End of questions submitted for the record.]

THURSDAY, MAY 11, 1989.

SHIPBUILDING INDUSTRIAL BASE

WITNESS

HON. HELEN BENTLEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MARYLAND

INTRODUCTION

Mr. MURTHA. The committee will come to order.

This afternoon's hearing will address the urgent problem of shipbuilding industrial base. Since 1982 there have been 43 shipyard closings and employment in the shipbuilding industry has fallen from 112,000 to about 79,000. This has occurred despite a steady or growing level of Navy shipbuilding procurement.

The Committee is gravely concerned with the decline in the shipbuilding industrial base illustrated by the shipyard closings and employment shrinkage. At the same time the Committee has been told by numerous witnesses that there is a critical shortage of sealift to support the armed forces.

From the looks of the audience, we have some of the foremost experts in shipbuilding in the entire country and foremost among those is Mrs. Helen Bentley, who knows quite a lot about shipbuilding.

We appreciate her appearing before the committee and we welcome you to sit in on the hearing if you would like, Mrs. Bentley.

Mrs. BENTLEY. Thank you, Mr. Chairman.

Mr. MURTHA. We will put your statement in the record and we would appreciate it if you would summarize your statement for us.

This committee has probably been as strong a supporter of sealift and industrial base support as any committee in Congress. We feel very strongly about the need for having a viable shipbuilding industry, and we hope we will be able, from this hearing, to fashion a plan to increase the sealift of this country.

Every witness that has appeared before the committee has said that we are substantially short in sealift, that if we were to have a major emergency, we could transport a lot of our equipment and manpower by air, but the biggest percentage would still have to go by sea and we just don't have that capacity.

So it is a national defense issue and we have to have an industrial base because it is so important to our competitiveness.

Welcome, Mrs. Bentley, to the committee. We will be glad to hear your comments.

SUMMARY STATEMENT OF MRS. BENTLEY

Mrs. BENTLEY. Thank you, Mr. Chairman.

I will summarize my rather lengthy statement, which goes into all aspects of shipbuilding.

This morning, Mr. Chairman, we had a shipyard working group breakfast where we reviewed some of the problems facing the shipbuilding industry, concentrating on the pervasive subsidization of foreign shipyards and how that has contributed to the virtual collapse of the U.S. commercial shipbuilding and ship repair industry, and on a positive note, a review of how the industry, if given half a chance, plans to regain its competitiveness.

One of the things that was pointed out, one of the things that we need to push through our Special Trade Representative's Office, is going after these other countries which subsidize their yards so heavily and then come after our work.

I am critical of the Navy and some of their activities and what they have done with regard to our shipbuilding industry and also I question the scenario that the Navy has been using as to the needs down the road.

SHIPBUILDING CAPABILITIES

For example, I say in my statement that what I do expect is a recognition by the Navy that U.S. shipbuilding capabilities should have a greater priority.

Secretary Garrett, in his letter which I have just submitted to the committee, points out that Navy mobilization requirements consist of completion of ship construction, activation of the Ready Reserve Fleet, installation of sealift enhancements, and battle-damage repair, and that "ship construction is our lowest mobilization priority."

Mr. Chairman, this is an example of Navy philosophy which I believe is wrong and misleading, and which I believe this Committee and this Congress should strive to alter.

History does repeat itself, and while we all hope and pray that the world will never become engulfed in yet another world war, hoping and praying is not sufficient. If that were the case, then we wouldn't have to spend untold billions of dollars every year in support of our military.

One of the points in the report from the Commission on Merchant Marine and Defense stated that in 1988, there were only 57 public and private shipyards employing 114,000 production workers available for mobilization-type work and yet in the letter Mr. Garrett projects that a peacetime shipbuilding and repair base requirement of 64 public and private facilities with an employment of approximately 142,000, that is nearly 30,000 more production workers would be necessary to meet our mobilization needs.

Even more to the point, Mr. Chairman, the Commission reported that only 136,200 production workers existed in all U.S. shipyards. The industry has deteriorated to the point that trained shipyard workers and technicians are leaving for more stable employment opportunities, leaving a void that will be impossible to fill should there be a mobilization surge. I think we need to look at that very carefully.

A case in point is the Navy's need to import 51 Japanese shipfitters, marine machinists and boilermakers because it couldn't find a sufficient number of qualified American workers to fill vacancies at the Long Beach Naval Shipyard.

In the same year, the Navy imported 25 Japanese and 25 Filipino electricians to work at the Philadelphia Naval Shipyard; again, because it couldn't attract American workers.

Serious shortages of qualified shipyard workers exists today in Philadelphia. The Navy is actively recruiting workers at the Sparrows Point Shipyard in my own district, offering them premium wages two to three dollars an hour above the prevailing rates. There seems to be a serious contradiction in the Navy's policy when they are able to pay its shipyard workers premium wages, when at the same time they impose strict, tight-fisted procurement procedures on the private yards.

SUPPLIER INDUSTRIAL BASE

Going through all of the reports, I would like to prevail upon this Committee to ascertain from today's witnesses Navy's justification for foreign procurement for components used in naval ships. I think this is a very important part of why we are losing our industrial base.

As a result of its production base analysis, the Navy concedes that while there is shipyard capacity to lay down 51 percent of a requirement, a requirement they seem to address on one instance and back away from on another, the industry can only deliver 34 percent due to insufficient domestic capacity of components and systems for these ships.

Navy's request for short-term savings has allowed foreign competitors market access to our rapidly eroding shipyard supplier base.

No one in this Congress is more cognizant of our need to control Federal spending and to regain control of our ballooning national debt than I am.

Despite my feelings on that issue, Mr. Chairman, I also realize that our Government must pay a premium to maintain our national defense, to maintain our mobilization and industrial base, and that especially includes our shipbuilding industry.

We, as a nation, cannot be lulled into a false sense of security or become complacent by our national political and military leadership, who are always quick to fall back to their safety net position that we have the resources of our allies available to us.

I, for one, am not willing to rely on the resources of another nation for our national defense—and that is what we are talking about here—the national defense of the United States.

SUMMARY

I just want to say in closing, Mr. Chairman, that foreign competition, which is often heavily subsidized and employs unfair practices, is killing U.S. industries. And the Federal Government, with its misguided policies of so-called free trade, is willing to sit idly by and watch it happen.

Mr. Chairman, with your help and the help of this Committee, we can reopen their eyes and reeducate our policymakers, both on

Pennsylvania Avenue and in the Pentagon, to the absolute need of maintaining all of our national security components.

The United States shipbuilding industry is too important to allow it to deteriorate to the point where only a few highly specialized yards are all that is left open. Mr. Chairman, we are rapidly approaching that point. The time for change is now. Tomorrow may be too late. That is a summary of my statement. Thank you for the opportunity to be able to be here, Mr. Chairman.

Mr. MURTHA. Thank you very much.

[The statement of Mrs. Bentley follows:]

REMARKS OF
THE HONORABLE HELEN DELICH BENTLEY
BEFORE THE
HOUSE APPROPRIATIONS DEFENSE SUBCOMMITTEE
WASHINGTON, D.C.
MAY 11, 1989

Thank you, Mister Chairman, and thank you Mister McDade for giving me this opportunity to appear before your subcommittee today to share with you some of my views and concerns regarding the rapid deterioration of the United States shipbuilding industry and its supplier industries, and how Navy policy, in my view, has aggravated that decline.

I want to commend both of you for calling this hearing today to address a situation that has immense significance to the future national security needs of this great country of ours.

Too often, our national security requirements are overlooked when policymakers formulate procurement policies, which focus on near-term cost savings and ignore the long-term consequences.

In this era of global jet travel and, in the not too distance future, space travel, the fact that the United States is a maritime nation is often overlooked or ignored. This country was discovered by mariners, and mariners helped to build this country by supplying the world with its rich resources.

The U.S. shipbuilding industry has been a valuable contributor to those efforts. No one can dispute the herculean efforts of our shipbuilding industry and their important contribution in the winning of World War II, building some 6,000 ships within in a five year period.

To many, that is ancient history and has nothing to do with the present or the future.

That attitude is nothing short of foolhardy.

A weak nation is a vulnerable nation.

And a nation without a viable shipbuilding industry is a weak, vulnerable nation.

Mister Chairman, I submit that the United States, with its misguided federal policies, is quickly becoming a nation I just described.

I am not hear to lay all of the blame for this decline at the feet of our Navy.

This morning, I had the privilege of hosting 30 of my colleagues at a "Shipyard Working Group" breakfast, where we reviewed some of the problems facing the shipbuilding industry, concentrating this morning's meeting on the pervasive subsidization of foreign shipyards and how that has contributed to the virtual collapse of the U.S. commercial shipbuilding and ship repair industry; and, on a positive note, a review of how the industry, if given half-a-chance, plans to regain its competitiveness.

Allow me to review for a moment some of the facts that graphically outline the ill-health of the shipbuilding industry.

- In 1978, 60 merchant ships were on order in U.S. yards; in 1988 and 1989, not a single commercial vessel was on order or under construction.

- Since 1978, more than 55 U.S. shipyards and repair facilities closed and more than 60,000 production workers lost their jobs; 14 companies are in Chapter 11.

The demise of the U.S. commercial shipbuilding industry resulted directly from massive and INCREASING SUBSIDIES PROVIDED TO FOREIGN YARDS after the United States unilaterally eliminated funding of its construction-differential subsidy in 1981.

As I have said, the U.S. shipbuilding industry has deteriorated because of a number of factors, many beyond the control of the industry and, Mr. Chairman, the Navy has taken advantage of the situation, much like it would take advantage of a weaken adversary - a weakened enemy.

For many years, the mix of ships built by U.S. shipyards approximated one-half merchant ships and one-half Navy work.

The commercial work began to die in 1981 with the cessation of funding for the Construction-Differential Subsidy program.

Over the last eight years, only 18 commercial ships have been ordered in this country with the last delivered in November of 1987.

The Navy recognized in the early 1980s that it had a captive industry which was willing to aggressively compete for business, and even submit non-compensatory rates to meet the Navy's procurement demands.

In my opinion, the Navy has taken a very short view of the marketplace in its desire to acquire ships at the lowest possible initial price without concern for any long term destabilization and contraction of either the shipbuilding or the supplier industrial base.

The Navy's application of competition can easily be described as choking the goose that laid the golden egg.

The Navy ship procurement officials, most notably Everett Pyatt, have in their own words saved billions of dollars with their brand of competition.

When quizzed closely on the amount of shipbuilders' claims they have pending, they are somewhat less direct and talkative.

Let me remind the committee that a Navy team in 1985 expressed the opinion that West Coast shipbuilding capability was not necessary.

Mr. Chairman, I have to say, the Navy in its public statements lays the blame for its competitive practices at the feet of Congress.

Obviously, Mr. Chairman, we in the Congress, as well as the taxpayers of our country do expect the Navy to get the best possible ships and planes and other equipment for the men and women of the Armed Forces for the best price, but we and the taxpayers also expect the procurement experts within Navy to do so in a manner that balances short term savings against long term consequences.

Mr. Chairman, there is some truth that Congressional edicts have encouraged some of the practice, but not the bludgeoning that the industry has been saddled with.

This committee and this Congress needs to send a clear message to Navy Secretary-Designate, Mr. Garrett, that short-term savings from the competitive process must be balanced with long-term economic stability.

Without regard for the financial stability or long term survivability of the yards, the Navy employed fixed-price contracts, lowest bid, Navy-instructed change orders and risk sharing as the principal tools to achieve the lowest possible initial cost.

What bothers me is what appears to a lack of understanding - wilful or real - that the Navy and all segments of government need to take positive steps to stop the hemorrhaging and build up the blood bank.

Recently, I communicated my concerns in this regard to the Navy and received a reply that I do not find encouraging.

Mister Chairman, I would like to submit to the subcommittee a copy of that reply which I received from Mr. H. Lawrence Garrett, III, now Secretary-Designate of the Navy, so that it may be made part of the official record of this proceeding.

I do not expect the Navy to implement procurement policies to restore the shipbuilding mobilization base to its World War II level, or to be the sole savior of the U.S. shipbuilding industry, even as it exists today.

As I have indicated before, the problems confronting U.S. maritime industries are multi-faceted. If we are to rescue this important national security industry, a number of federal and industry initiatives will be required.

What I do expect is a recognition by the Navy that U.S. shipbuilding capabilities should have a greater priority. Secretary Garrett, in his letter which I have just submitted to the subcommittee, points out that Navy mobilization requirements consist of completion of ship construction, activation of the Ready Reserve Fleet, installation of sealift enhancements and battle-damage repair, and that "ship construction is our lowest mobilization priority."

Mister Chairman, this is an example of Navy philosophy which I believe is wrong and misleading, and which I believe this committee and this Congress should strive to alter.

History does repeat itself, and while we all hope and pray that the world will never become engulfed in yet another World War, hoping and praying is not sufficient. If that were the case, then we wouldn't have to spend untold billions of dollars every year in support of our military.

We are maintaining the strongest and best equipped military establishment in the world. Yet, the military, particularly the Navy, gives only lip service to the basic and most important means of transporting our military personnel, equipment and supplies to a theater of war -- ocean transportation. But, I don't have to tell this committee what you have already heard during testimony from General Duane Cassidy, of TRANSCOM, and the other CINCS.

Ships are not indestructible. They sink when torpedoed or attacked by missile, and they need to be replaced.

But, they can't be replaced - or be replaced rapidly and in sufficient numbers - if this country continues on a course of dismantling its mobilization and industrial base.

Mr. Chairman, I would hope that you or another of the committee's distinguished members might pose the question to the representatives of the Secretary of Defense and the Maritime Administration to determine if they concur with the Navy's interpretation of the shipbuilding mobilization responsibilities during war or national emergency.

Furthermore, Mr. Chairman, in the same letter of response, the Navy projected that a PEACETIME shipbuilding and repair base of 64 public and private facilities with an employment of approximately 142,000 production workers would be necessary to meet our mobilization needs.

The Commission on Merchant Marine and Defense, in its third report, stated that in 1988 there were only 57 public and private shipyards employing 114,500 production workers available for mobilization-type work.

Even more to the point, Mister Chairman, the Commission reported that only 136,200 production workers existed in ALL U.S. shipyards, which encompasses every boat yard, mooring buoy, etc.

The industry has deteriorated to the point, Mister Chairman, that trained shipyard workers and technicians are leaving for more stable employment opportunities, leaving a void that will be impossible to fill should there be a mobilization surge.

The shortage exists today - in peacetime.

A case in point is the Navy's need to IMPORT 51 Japanese electricians and electronic technicians because it couldn't find a sufficient number of qualified American workers to fill vacancies at the Long Beach Naval Shipyard.

In the same year, the Navy IMPORTED 25 Japanese and 25 Filipino electricians to work at the Philadelphia Naval Shipyard; again, because it couldn't attract American workers.

Serious shortages of qualified shipyard workers exists today in Philadelphia. The Navy is actively recruiting workers at the Sparrows Point Shipyard in my own district, offering them premium wages $2 to $3 an hour above the prevailing rates.

There seems to be a serious contradiction in Navy's policy when they are able to pay ITS shipyard workers PREMIUM wages, when at the same time they impose strict, tight-fisted procurement procedures on the private yards.

Mister Chairman, given this information, one can readily understand why the Navy does not acknowledge a ship construction requirement during war or mobilization. The industry is currently only marginally capable of meeting the requirement as acknowledged by Secretary Garrett.

I would hope that this Committee would press the witnesses from the Department of Defense, the Navy and the Maritime Administration on just what they believe their mobilization roles and requirements are.

Mister Chairman, I would also like to prevail upon this subcommittee to ascertain from today's witnesses Navy's justification for foreign procurement for components used in Naval ships.

As a result of its Production Base Analysis, the Navy concedes that while there is shipyard capacity to laydown 51 percent of a requirement - a requirement they seem to address on one instance and back away from on another -- the industry can only deliver 34 percent, due to insufficient domestic capacity of components and systems for these ships.

Again, Mr. Chairman, Navy's quest for short-term savings has allowed foreign competitors market access to our rapidly eroding shipyard supplier base.

No one in this Congress is more cognizant of our need to control federal spending and to regain control of our ballooning nation debt than I am.

Despite my feelings on that issue, Mister Chairman, I also realize that our government MUST pay a premium to maintain our national defense, to maintain our mobilization and industrial base, and that especially includes our shipbuilding industry.

We, as a nation, cannot be lulled into a false of security or become complacent by our national political and military leadership, who are always quick to fall back to their safety-net position that we have the resources of our allies available to us.

I, for one, am not willing to rely on the resources of another nation for OUR national defense -- and that is what we are talking about here - the national defense of the United States.

When any one speaks of national defense, everyone automatically thinks of our military capabilities. Well, our military capabilities IS ONLY ONE aspect of national defense equation.

The UNITED STATES merchant marine, the UNITED STATES shipbuilding industry and the UNITED STATES manufacturers of vessel components and equipment, the few that are remaining, are AS IMPORTANT to our national defense as our military capabilities.

Too often, we lose sight of that fact.

Too often, our political leadership is quick to help the ailing industries and ailing economies of other nations, while at the same time they close their eyes to what is going on this country.

Foreign competition, which is often heavily subsidired and employs unfair practices, is killing U.S. industries, and the federal government, with its misguided policies of so-called Free Trade, is willing to sit idly by and watch it happen.

Mister Chairman, with your help and the help of this subcommittee, we can reopen their eyes and re-educate our policymakers, both on Pennsylvania Avenue and in the Pentagon, to the absolute need of maintaining ALL of our national security components.

The United States shipbuilding industry is too important to allow it to deteriorate to the point where only a few highly specialized yards are all that is left open.

Mister Chairman, we are rapidly approaching that point.

The time for change is now. Tomorrow may be too late.

Thank you, Mister Chairman.

APR 2 8 1989

DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20350-1000

25 April 1989

The Honorable Helen Delich Bentley
House of Representatives
Washington, D.C. 20515

Dear Ms. Bentley:

Thank you for your memorandum of March 1, 1989, to Secretary Ball regarding the effects of Navy policy on the U.S. commercial shipbuilding industry. I am responding on his behalf.

We share your concerns about the continuing erosion of the U.S. shipbuilding base and the eventual potential for adverse impact on our mobilization base. However, we do not share the view that Navy policies have significantly contributed to the decline in the shipbuilding industry or the implication that the current ship construction and repair mobilization base is inadequate.

Navy mobilization requirements consist of completion of ship construction ongoing at mobilization, activation of the Ready Reserve Fleet, sealift enhancements to selected merchant ships and battle damage repair. Ship construction is our lowest mobilization priority. We project that a peacetime shipbuilding and repair base of 64 public and private facilities with an employment of approximately 142,000 production workers is necessary to meet our mobilization requirements. In recognition of the domestic and worldwide decline of the commercial shipbuilding and repair industry, the Navy has initiated a number of policies aimed at maintaining an adequate shipbuilding mobilization base. These include restricting competition for shorter repair availabilities to the homeport area thus ensuring adequate repair bases in Navy ports, expanded geographic areas of consideration for availabilities over six months in length and policy changes that restrict post-award growth in repair/overhaul contracts including more complete and definitive specification packages for initial bids. Additionally, the competitive second-sourcing of virtually all Navy shipbuilding programs has been vital to minimizing the erosion of the shipbuilding base. Recently our T-Ship programs have been the sole source of near term relief for those U.S. shipbuilders who have traditionally relied on ocean going merchant ship construction.

The Navy, as a responsible custodian of public funds, has made every effort to maximize the purchasing power of each scarce defense dollar. Competition of shipbuilding programs combined with firm fixed-price contracting has enabled us to bring program after program to fruition at costs below initial estimates in defiance of historical precedent. Competition is not based on price alone and is used only where appropriate and firm fixed-price contracts only when we are comfortable with both work scope and technical definition. Firm fixed-price contracts are now standard for ship overhaul/repair with growth work subject to a separate fixed-price competition should negotiations be unsatisfactory.

Our shared concerns regarding the current and future welfare of the shipbuilding and repair industry notwithstanding, the Navy, as currently and historically budgeted, cannot afford to pay price premiums to buy excess industrial capacity beyond that required to efficiently execute our shipbuilding plans. Unless funded by Congress to maintain an industrial base of excess capacity for mobilization contingencies, we are constrained to provide only for efficient and competitive production for naval warships and supporting vessels.

I appreciate your taking the time to share your thoughts on this issue and hope you will not hesitate to contact me if I can be of further assistance.

Sincerely,

H. Lawrence Garrett, III
Secretary of the Navy
Acting

THURSDAY, MAY 11, 1989.

SHIPBUILDERS COUNCIL OF AMERICA

WITNESS

JOHN STOCKER, PRESIDENT, SHIPBUILDERS COUNCIL OF AMERICA

INTRODUCTION

Mr. MURTHA. Today we have before the committee seven representatives of the shipbuilding industry, one of which is Mr. Stocker, the President of the Shipbuilders Council of America.

If all of you gentlemen would come up and take a seat at the table, we will begin with Mr. Stocker. We are going to limit your comments to five minutes apiece and then we would like to go to questions. Later we will hear from Department witnesses.

Mr. Stocker, please proceed.

SUMMARY STATEMENT OF MR. STOCKER

Mr. STOCKER. Thank you, Mr. Chairman and Members of the Committee.

We thank you for this opportunity to appear before this Committee this afternoon and I would ask that my full statement be entered into the record. I want to thank you, Mr. Chairman, for the opportunity to appear here to describe in very brief details the situation facing the United States shipbuilding industry and to go on and discuss in brief a potential solution or set of solutions to allow for conditions in the industry to improve.

REDUCTION IN COMMERCIAL SHIPBUILDING

It is well known, I think, to the members of this Committee that the industry, since 1982, has seen a drop in capacity of nearly 40 percent.

You can look at a number of different bases in terms of firm size and number of employees, but no matter whether you use our data or others, we have seen substantial capacity reductions. These capacity reductions have occurred despite the fact that this Committee and the Congress in general has been very supportive of the rebuilding of the naval fleet to 600 vessels.

It is that program that has provided a basis for this industry to survive what has caused the capacity reduction and that is the collapse of the commercial market.

It is without a doubt, with our workload presently 95 percent in the form of contracts that we have with the U.S. Navy, that without those Navy programs we would have suffered even more grievous harm than we have to this date.

Unfortunately, those programs are coming to an end. Unfortunately, we will not achieve the goal of a 600-ship Navy and we are looking forward to forecasts that suggest that given the budget deficit, it will be extremely difficult to maintain the level of spending that we have seen in the past devoted to Navy shipbuilding programs. So those programs that we have seen are programs from the past and they have been successfully achieved.

Our concern is with the future, and without a commercial shipbuilding program in the United States, in conjunction with whatever size Navy program we have into the future, we will see further job loss. We are projecting a further 10 percent decline in the size of the industrial base by 1990.

The problem that we have in commercial shipbuilding is the rampant subsidization that we face in the international market, and we are contemplating trade action. We have been speaking with a number of Members of Congress about that trade action.

SEALIFT PROCUREMENT PROGRAM

In conjunction with trying to eliminate foreign subsidy practices, the Shipbuilders Council as a trade association for the shipbuilding industry has proposed a program of recovery which is largely based on our ability to build ships to meet the sealift mission.

We have proposed in our statement that is before you this afternoon, a sealift program that can begin to start the process for us. We need a way to amortize the necessary investment, retraining of workers, and now research and development necessary for the design and construction of future ships. We need a way to amortize that investment for the future and we should establish as our goal the ability of this industry to become internationally competitive and use the sealift programs to achieve that goal.

We believe it can be done. We have outlined the program in our statement for building fast sealift vessels as well as replacement sealift tankers and would be pleased to discuss those details with you during the course of the afternoon.

Mr. MURTHA. Thank you.

[The statement of Mr. Stocker follows:]

Shipbuilders
Council of
America

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STATEMENT OF

JOHN J. STOCKER
PRESIDENT
SHIPBUILDERS COUNCIL OF AMERICA

BEFORE THE

SUBCOMMITTEE ON DEFENSE
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES

ON

THE SHIPBUILDING INDUSTRIAL BASE

MAY 11, 1989

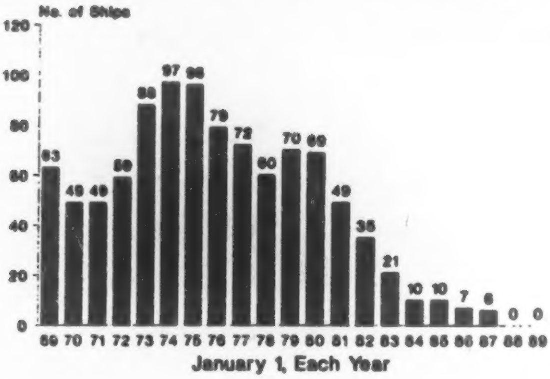
Mr. Chairman and distinguished members of the Committee, I am John J. Stocker, President of the Shipbuilders Council of America. The Council is the national trade association representing the shipbuilding, ship repair and marine manufacturing industries in the United States. Our membership represents approximately 95 percent of all new construction and repair work in process in the country at this time. A list of our members is attached to this statement.

It is a pleasure for me to appear before you today to discuss the shipbuilding industrial base and to describe for you the condition of our national shipbuilding industry.

Shipbuilding in the United States has, for all practical purposes, only one customer -- the U.S. Government, principally the U.S. Navy. Over 90 percent of our workload is derived from Navy contracts for new construction and repair.

This dependence on a single customer has largely occurred because of the collapse of the commercial shipbuilding market in the United States. Ten years ago, U.S. shipyards had 155 vessels under construction, half of those ships were for commercial clients. However, today there are no commercial vessels under construction. In fact, the last order for a commercial vessel was placed five years ago, in 1984, and the last vessel was delivered in November 1987.

The following chart illustrates the precipitous decline of the commercial shipbuilding market in the United States:


New Merchant Vessels Under Construction Or On Order at U.S. Private Shipyards

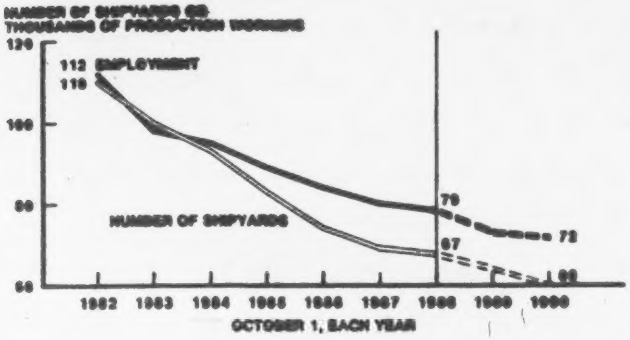
The charge is usually made that the reason for the collapse of the U.S. shipbuilding industry's commercial market is due to the lack of competitiveness in the international market. Our response to that charge is to ask, by what measure can you calculate competitiveness in a marketplace distorted by foreign government shipbuilding subsidy practices? The commercial market collapsed in the United States because the Reagan Administration declared unilateral economic disarmament by terminating construction subsidies in 1981 without declaring war on foreign subsidy practices. How can you measure competitiveness when West Germany gives direct production subsidies to their shipyards and when public sector entities hold substantial equity positions in those yards? How do you measure competitiveness when, in Japan, the government approved the formation of a shipbuilding cartel for the purpose of jointly pursuing domestic and export orders and where financing is guaranteed by the government at interest rates as low as five percent? How do you measure competitiveness when South Korean shipyards have generated well over $5 billion in debt at their four principal shipyards, largely as a result of their predatory pricing practices of the early 1980s, and the government has determined that it will assume the debt burden in order to keep the yards open? How do you measure competitiveness when the Norwegian government seeks to subvert American law, written to generate an American fishing vessel market, by offering two percent loans with extended repayment and grace periods?

How do American yards compete against those practices when the U.S. Government refuses to recognize the realities of the international market and sends companies out into the market to compete, not with foreign shipyards, but with foreign governments?

We cannot remain competitive in the face of these practices.

In early 1984, the U.S. Navy and the Maritime Administration (MARAD) issued a joint classified report which examined the ability of the private shipbuilding and ship repair sectors to contribute to a national mobilization base. The 1982 "Shipyard Mobilization Base Analysis" or "SYMBA" study identified 110 private shipyards as essential to the nation's mobilization requirements. As depicted in the following chart, 43 of those 110 SYMBA yards have closed leaving only 67 yards, or 60.9 percent, in operation today. We anticipate that by 1990 a further ten percent reduction in the base will have occurred.

PRIVATE U.S. SHIPYARD BASE



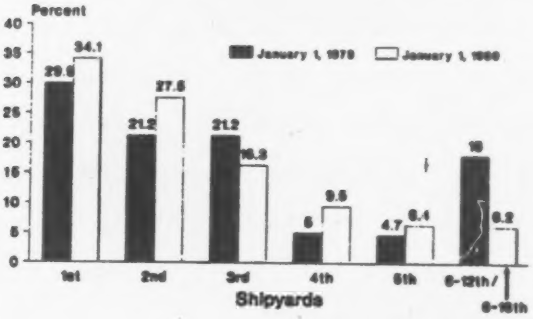
Thus, it is reasonable to conclude that the decline in U.S. shipbuilding capacity is attributable to the export of U.S. shipbuilding capacity to foreign countries.

The great irony is that this collapse occurred during a time period when the Navy was winning broad congressional and political support to rebuild its fleet to 600 ships. While it appears that this goal will not be achieved, it is true that the industry benefitted from the naval shipbuilding program of the '80s.

Naval vessel construction, however, emphasizes a very specialized shipyard. One that is capable of integrating complex combat systems with hull, mechanical, and electrical systems that are profoundly more technologically sophisticated than any commercial vessel operating today. As a result, the Navy was entirely accurate when it stated that it alone could not support the broad geographically dispersed and diversified industry necessary for mobilization purposes.

The data certainly supports this conclusion. Ten years ago, 25 yards were involved in naval or merchant construction. Today, only 16 private shipyards are involved in the construction of major seagoing ships and all of those are for the U.S. Navy. The following chart depicts the fact that five shipyards now hold over 93 percent of the dollar value of all outstanding Navy shipbuilding contracts in the private sector. The remaining eleven yards are trying to survive while competing for a share of the remaining 6.2 percent of the marketplace. By comparison, seven yards in 1979 were competing for the marginal 18 percent of the Navy workload. With few new Navy programs envisioned over the five-year plan, the prognosis for those yards is not good.

Distribution of SCN Dollars to Shipyards By Percent of Total Contract Value



The Secretary of the Navy certainly recognizes the dangerous status of the industry. In a December 13, 1988 letter to this Subcommittee, the Secretary stated that the Navy's Shipbuilding Production Base Analysis (SPBA) indicated that in a conventional war scenario:

> "New construction requirements however cannot currently be met because of inadequate shipyard facilities, insufficient labor capacity, and the inability of supporting industries to fully satisfy shipbuilder demand for equipment. Although the shipyards have facilities to construct 51% of the required vessels, the limitations of labor and supporting industry drive ship deliveries down to 34% of the requirement."

Despite this surprising admission regarding our national shipbuilding capacity, the Secretary then proceeded to state that the closure of three major shipyards, which together have built hundreds of commercial and Navy ships, would have "minimum overall impact" on our shipbuilding base. In response to this letter, the Shipbuilders Council recently released an "Analysis of the Shipyard Mobilization Base." The analysis showed almost no capability in this country to build the 250 large (in excess of 710 foot) tankers and cargo ships which the nation requires for mobilization.

As bad as the shipbuilding and ship repair industrial base may be, the national infrastructure of manufacturing firms supplying components which are integral parts of both commercial and naval ships may be in worse condition. Across the broad spectrum of machinery including turbines, diesel engines, gears, valves, castings and forgings, delivery lead times are increasing and the number of companies bidding on such work is rapidly decreasing.

Can this problem be solved?

The answer is a resounding "YES!" What distinguishes the United States from our international competitors is the lack of an industrial strategy that will allow American shipyards to emerge as a competitive force in the international market.

The Council's Shipyard Recovery Program is intended to lay the conceptual framework to make the articulation of a strategy possible. We believe a partnership between industry, labor, and government is essential to the industry's recovery. Our goal is not to recapture nine percent of the world commercial market we held in 1979, but two to three percent, which would fully utilize existing, not expanded, U.S. capacity.

The elements of the recovery program are:

1. The U.S. Government should place the elimination of foreign shipbuilding subsidies high on its trade agenda. This Committee can help us in that endeavor by supporting the industry's effort to have the Bush Administration take on this issue.

2. Shipyard management and labor would make a commitment to focus on the production process to improve productivity through new capital plant investment and new approaches to work organization.

3. Given the industry's present financial condition, government support for commercial research and development focusing on new production improvements and new ship designs is absolutely essential. Our competition has extensive government support, and we need to foster new thinking about the future. The House has already passed H.R. 1486, the Maritime Administration Authorization Bill, with modest amounts of funding ($2.25 million) to start this process. We ask your support in seeing that the program is funded.

4. Our goal of achieving international competitiveness through new capital investment, new training and work methods,

and research and development to create a product attractive to the shipowner, can only be achieved by the existence of a program that will allow for the amortization of capital investment. It is here that this Subcommittee can take the lead. Almost every Commander-in-Chief of the Unified and Joint Commands has testified before Congress on the need for military sealift. Sealift programs will generate the short-term returns that can guarantee the long-term future of American shipbuilding. This Subcommittee, by funding a sealift program, can solve both the defense sealift shortfall and put into place the short-term program that will lead this industry to the international market. In part, sealift can be the shipbuilding industry's voluntary restraint arrangement (VRA).

The sealift program can be established in such a way that program performance emphasizes productivity achievements, cost reductions, and product development. If the program is to be developed, the industry would make the commitment that in return for program support, we would establish clear guidelines to modernize plants, reduce man-hours to construct, and shift our attention to the needs of commercial owners in a manner similar to the improvements American steel manufacturers have made in response to the Government's support of the VRAs. In other words, there should be a clear quid pro quo. This is a partnership; a strategy; not a subsidy.

This Committee and others in the Congress have heard testimony on our shortfall in sealift from a wide range of civilian and military leaders. The Administration and the Congress have an opportunity at this time to begin to resolve both the sealift and shipyard problems. We propose that the following steps be undertaken as soon as possible:

1. Build Replacement Sealift Tankers - The Military Sealift Command is presently operating nine Sealift Class tankers built in the early 1970s. These ships do not meet the requirements of the Port and Tanker Safety Act that requires that they have a segregated ballast system. To modify the tankers to meet the requirements would result in a significant reduction to their cargo-carrying capacity. The Navy has discussed replacing these nine tankers with up to six newly constructed ships. There are several excellent tanker designs currently available which could be utilized for this purpose. Construction funding could be appropriated in fiscal year 1990 for this program. While the Military Sealift Command has procured these type of vessels through build and charter programs in the past, there has been some unease expressed over the lease concept. We have proposed an outright acquisition approach as part of this recovery plan.

2. Large Monohull Sealift Ship - In a March 22, 1989 cover letter to the Navy's Fast Sealift Program Technology Assessment sent to the chairmen and ranking minority members of the House and Senate Armed Services Committees, Secretary of the Navy, William L. Ball, III, noted that: "It would certainly be possible to make a very modest redistribution of transportation funds to initiate a monohull program based on in-service technology. This would increase our fast sealift

capability, provide immediate work to the maritime industrial base hard pressed by lack of commercial shipbuilding, preserve a sector of the maritime industrial base that might otherwise not survive, and provide improved capability in the relatively near term."

In the interim, the Council recommends the addition in FY 1990 of $4.0 million to Program Element 63456N, Ship Development, Advanced designated for feasibility studies and preliminary design of the fast monohull sealift ship and $8.0 million in FY 1990 to Program Element 64567N, Ship Sub-System Development/LBTS, designated for contract design of the fast monohull sealift ship. This ship would have a lift capability similar to that of an SL-7 and would match its impressive speed. Depending on the alacrity with which these tasks are accomplished, lead ship funding could be required as early as FY 1991. Order of magnitude estimates for the lead ship are about $30 million for detailed design and about $200-250 million for lead ship construction. Follow ships would cost in the range of $200-225 million. A squadron of 12 ships of this class is considered initially adequate.

These two programs are the minimum necessary to begin to redress the growing sealift shortfall in the nation. Funding profiles for these options are shown in the following chart:

Sealift Shipbuilding Program
(Direct Procurement)
($M)

Program	90	91	92	93	94	95
Sealift Tanker	1/$80.0	1/ $80.0	2/$150.0	2/$150.0	-	-
Large Fast Monohull	$12.0 (R&D)	1/$280.0	3/$630.0	3/$630.0	3/$630.0	2/$430.0
Total	1/$92.0	2/$360.0	5/$780.0	5/$780.0	3/$630.0	2/$430.0

This program will provide 18 badly needed sealift ships for slightly under $2.3 billion. If the Defense budget averages $300.0 billion over the next six years, expenditures for these ships will require just over one tenth of one percent of the budget. In fact, if DoD were to spend only one half of one percent of its budget ($1.5 billion a year) on sealift, many of the shipbuilding problems and the sealift shortfall could be resolved.

Mr. Chairman, we believe that this country's shipyards are a national asset which should not be allowed to fade away. Through our Shipyard Recovery Program, we commit ourselves to improving our productivity to make us competitive on the world commercial market. We do not have the wherewithal to do this by ourselves. We need the cooperation and support of the U.S. Government, in the short term, to ensure that we can achieve our goal.

Shipbuilders
Council of
America

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[illegible]

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Tampa Shipyards, Inc., Tampa, FL

Atlantic Marine, Inc.
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Jacksonville, FL 32226

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Bath Iron Works Corporation
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Bath, ME 04530

Bethlehem Steel Corporation
Marine Construction Group
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Beaumont, TX
Sparrows Point, MD

Capital Marine Corporation
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North American Shipbuilding Division
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General Dynamics Corporation
Pierre Laclede Center
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Electric Boat Division, Groton, CT
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Metro Machine Corporation
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Newport News Shipbuilding
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Norfolk Shipbuilding &
Drydock Corporation
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Todd Shipyards Corporation
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Northvale, NJ 07647

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Prospect Hill Road
Windsor, CT 06095

Dresser Pump Division
Dresser Industries, Inc.
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Harrison, NJ 07029

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Cutler-Hammer Products
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IMO Industries, Inc.
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Jered Brown Brothers, Inc.
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Lake Shore, Inc.
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South Tidewater Association of
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Chesapeake, VA 23324

THURSDAY, MAY 11, 1989.

BATH IRON WORKS CORP.

WITNESS

WILLIAM E. HAGGETT, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, BATH IRON WORKS CORP.

INTRODUCTION

Mr. MURTHA. The next witness is Mr. Haggett of Bath Iron Works. Mr. Haggett.

SUMMARY STATEMENT OF MR. HAGGETT

Mr. HAGGETT. Thank you, Mr. Chairman and Members of the Appropriations Committee.

In addition to my corporate duties, I have been a member of the Shipbuilders Council for many years and just completed two very intense years as a member of the Commission on Merchant Marine and Defense.

I will speak to you from the perspective of all three.

AEGIS CONSTRUCTION

Just very briefly as an opening, Bath Iron Works is one of a handful of strong and healthy American shipyards. After decades of building a mix of Navy combatants and merchant ships, our company shifted its entire focus to Aegis cruiser and destroyer construction in the early 1980s. That decision, coupled with the shipyard's experience and capabilities, gained BIW a strong foothold in Aegis programs which will continue through the 1990s. BIW has delivered two Aegis cruisers to the Navy, and holds contracts to deliver six more.

BIW was awarded the lead ship contract for the DDG-51 class destroyers in 1985 and holds contracts for four more.

Despite unprecedented design and construction challenges, ARLEIGH BURKE is progressing rapidly and will be launched in September. Moreover, the destroyer will achieve all its operational objectives and is certain to be the world's standard bearer for surface combatants.

However, I am not here today to talk about BIW. A limited number of American shipyards enjoy relatively strong positions in our industry. By concentrating awards in those yards, the Navy is getting high-quality, complex ships at the lowest possible costs.

The strategy of competing and dual sourcing whenever possible is producing excellent results for the Navy and taxpayers. However, that strategy, combined with the total disappearance of a commercial shipbuilding market, has also contributed to a major problem for other American shipyards and threatens our defense mobilization capability.

COMMISSION ON MERCHANT MARINE AND DEFENSE

The question our Commission on Merchant Marine and Defense labored with was, "How do we continue a proven Navy procurement strategy, avoid the collapse of America's shipbuilding mobilization capability, and rebuild the merchant marine?" Our analysis of industrial components was extensive, and the results were alarming. In 1988, we first reported to the President and Congress "a clear and growing danger to the Nation's security in the deteriorating condition of America's maritime industries." Since then, the situation has gotten worse.

The commission's recommendations were broad and yet very specific. All of our studies and recommendations have been published and are available for your analysis. We found:

Shipbuilding companies, facilities and employment all declining precipitously with many shipbuilders gone and others in bankruptcy;

The vital supplier base rapidly compressing—in some cases only one American supplier remains;

Too few American flag merchant ships to support a surge requirement;

Declining NATO merchant fleets;

An even smaller and older cadre of American merchant seamen;

Too much reliance on an inactive reserve ship fleet that grows in size yearly and requires substantial resources to maintain;

Too little investment in research, development, and new ship designs;

And, of course, not one American merchant ship having been built in the last several years.

In other words, we found the industrial base required to support America's merchant marine mobilization in shambles and getting worse fast.

Every military leader we interviewed confirmed the absolute need for a strong sealift capacity in the event of conflict. All expressed concern for current conditions and recommended action, but cited the obvious budgetary problems.

The commission found it perplexing that in an era when this country's wage differentials compared to many foreign countries have narrowed or disappeared, and after many maritime union compromises, the U.S. is still building no ships. Among our many findings was clear evidence that elimination of shipbuilding subsidies in this country did not trigger a similar response abroad. Time after time we heard convincing proof of unfair trade practices and foreign subsidies. For that reason, we recommended a joint annual report from the Departments of State, Transportation, Commerce, and the United States Trade Representative to the Congress on unfair foreign trade practices that affect the U.S.-Flag merchant marine and maritime industries. The Commission recommended 18 specific legislative initiatives required to achieve international and national equity, enhance productivity, and restore the American merchant marine to a level of national defense adequacy.

As part of the overall solution, our commission would permit some procurement of merchant ships on the world market. But, we would insist that a minimal domestic shipbuilding program be pursued every year. That annual level, we concluded, must equate to 10 to 12 ships built in this country. Ten ships per year is a modest merchant shipbuilding program, but coupled with continuation of the Navy's plans and strategy will be sufficient to encourage capital investment, training, research, productivity gains, standardization and cost reductions.

It will also produce a sustaining market for steel, pipe, valves, shafting, engines, generators, gears, electrical components and thousands of other products vital to defense mobilization. Coincidentally, production of materials for merchant ships, which require more steel and heavy pipe than typical Navy combatants, sustains jobs and helps keep this Nation's economy strong.

The issues being discussed today reflect several key aspects of the Commission's recommendations, and to the best of my knowledge, are totally compatible with the overall concept put forward by the Commission.

FUNDING A SEALIFT PROGRAM

Your major dilemma will be funding a sealift program. Can America afford to make the investment? Does it have a priority equal to or greater than other demands? After 2 years of study, the Commission on Merchant Marine and Defense would state that the priority is extremely high and that our country can afford no less.

None of us should ever get bullied into thinking that maintenance of an industrial base or mobilization capability happens automatically. Nor should we think it possible to repeat World War II miracles. Navy and merchant ships today are infinitely more complex than those which sailed 45 years ago. Building ships capable of viable operations takes years—and those time frames cannot be compressed much.

Repairing battle damage, such as BIW is now doing on the USS SAMUEL B. ROBERTS and Ingalls did on the USS STARK, is extremely challenging and time consuming. The innovative methods applied to repair the ROBERTS can only be accomplished in shipyards with extensive facilities and a seasoned work force. The systems and electronics on our ships just do not lend themselves to slap-dash, quick and easy fixes. America must be ready when the bell rings. Only active ships and shipyards will be capable of acting fast enough to have any impact.

Perhaps even more importantly, an active Navy, merchant marine, and industrial base is a real deterrent to any aggressor.

Mr. MURTHA. Let me compliment Bath on the work they did on the ROBERTS because I visited the ship and I remember the captain saying how impressed he was with the workmanship in the ship and if it hadn't been for the extensive training of the crew and a well-built ship, we would have lost a lot of lives as well as a $470 million ship. They were very complimentary about the work at Bath Iron Works.

[The statement of Mr. Haggett follows:]

STATEMENT OF

WILLIAM E. HAGGETT
CHAIRMAN AND
CHIEF EXECUTIVE OFFICER
BATH IRON WORKS CORPORATION

BEFORE THE

DEFENSE SUBCOMMITTEE OF
COMMITTEE ON APPROPRIATIONS
U. S. HOUSE OF REPRESENTATIVES

ON

THE SHIPBUILDING INDUSTRIAL BASE

MAY 11, 1989

Mr. Chairman and distinguished members of the Appropriations Committee, I am William E. Haggett, Chairman and Chief Executive Officer of Bath Iron Works Corporation. In addition to my corporate responsibilities, I have been an active member of the Shipbuilders Council Executive Committee for many years, and recently completed two intense years' study of our merchant marine's adequacy as a member of the Commission on Merchant Marine and Defense.

BIW is one of a handful of strong and healthy American shipyards. After decades of building a mix of Navy combatants and merchant ships, our company shifted its entire focus to Aegis cruiser and destroyer construction in the early 1980's. That decision, coupled with the shipyard's experience and capabilities, gained BIW a strong foothold in Aegis programs which will continue through the 1990's. BIW has delivered two Aegis cruisers to the Navy, and holds contracts to deliver six more. BIW was awarded the lead ship of the DDG 51 class destroyers and holds contracts for four more. Despite design and construction challenges, ARLEIGH BURKE is progressing rapidly and will be launched in September. Moreover, the destroyer will achieve all its operational objectives and is certain to be the world's standard bearer for surface combatants. However, I am not here today to talk about BIW.

A limited number of American shipyards enjoy relatively strong positions in our industry. By concentrating awards in those yards, the Navy is getting high quality, complex ships at the lowest possible costs. The strategy of competing and dual sourcing whenever possible is producing excellent results for the Navy and taxpayers.

However, that strategy, combined with the total disappearance of a commercial shipbuilding market, has contributed to a major problem for other American shipyards and threatens our defense mobilization capability.

The question our Commission on Merchant Marine and Defense labored with was, "How do we continue a proven Navy procurement strategy, avoid the collapse of America's shipbuilding mobilization capability, and rebuild the merchant marine?"

Our analysis of industrial components was extensive, and the results were alarming. In 1988 we first reported to the President and Congress "a clear and growing danger to the nation's security in the deteriorating condition of America's maritime industries." Since then, the situation has gotten worse.

The Commission's recommendations were broad and yet very specific. All of our studies and recommendations have been published and are available for your analysis.

We found:

- Shipbuilding companies, facilities and employment all declining precipitously with many shipbuilders gone and others in bankruptcy
- The vital supplier base rapidly compressing -- in some cases only one American supplier remains
- Too few American flag merchant ships to support a surge requirement
- Declining NATO merchant fleets
- An ever smaller and older cadre of American merchant seamen
- Too much reliance on an inactive reserve ship fleet that grows in size yearly and requires substantial resources to maintain

- Too little investment in research, development and new ship designs

- And, of course, not one American merchant ship having been built in the last several years

In other words, we found the industrial base required to support America's merchant marine mobilization in shambles and getting worse fast.

Every military leader we interviewed confirmed the absolute need for a strong sealift capability in the event of conflict. All expressed concern for current conditions and recommended action, but cited the obvious budgetary problems.

The Commission found it perplexing that in an era when this country's wage differentials compared to many foreign countries have narrowed or disappeared, and after many maritime union compromises, the U.S. is still building no ships.

Among our many findings was clear evidence that elimination of shipbuilding subsidies in this country did not trigger a similar response abroad. Time after time we heard convincing proof of unfair trade practices and foreign subsidies. For that reason, we recommended a joint annual report from State, Transportation, Commerce, and the United States Trade Representative to the Congress on unfair foreign trade practices that affect the U.S. flag merchant marine and maritime industries.

The Commission recommended 18 specific legislative initiatives required to achieve international and national equity, enhance productivity, and restore the American merchant to a level of national defense adequacy. As part of the overall solution, our Commission would permit some procurement of merchant ships on the world market. But, we would insist that a minimal domestic shipbuilding program be pursued every year. That annual level, we concluded, must equate to 10 to 12 ships built in this country.

Ten ships per year is a modest merchant shipbuilding program. But coupled with continuation of the Navy's plans and strategy will be sufficient to encourage capital investment, training, research, productivity gains, standardization and cost reductions. It will also produce a sustaining market for steel, pipe, valves, shafting, engines, generators, gears, electrical components and thousands of other products vital to defense mobilization. Coincidently, production of materials for merchant ships which require more steel and heavy pipe than typical Navy combatants, sustains jobs and helps keep this nation's economy strong.

The issues being discussed today reflect several key aspects of the Commission's recommendations, and to the best of my knowledge are totally compatible with the overall concept put forward by the Commission.

Your major dilemma will be funding a sealift program. Can America afford to make the investment? Does it have a priority equal to or greater than other demands?

After two years of study, the Commission on Merchant Marine and Defense would state that the priority is extremely high and that our country can afford no less.

None of us should ever get bullied into thinking that maintenance of an industrial base or mobilization capability happens automatically. Nor should we think it possible to repeat WWII miracles. Navy and merchant ships today are infinitely more complex than those which sailed 45 years ago. Building ships capable of viable operations takes years -- and those time frames cannot be compressed much. Repairing battle damage, such as BIW is now doing on the USS SAMUEL B. ROBERTS and Ingalls did on the USS STARK, is extremely challenging and time consuming. The innovative methods applied to repair the ROBERTS can only be accomplished in shipyards with extensive facilities and a seasoned work force. The systems and electronics on our ships just do not lend themselves to slap-dash, quick and easy fixes.

America must be ready when the bell rings. Only active ships and shipyards will be capable of acting fast enough to have any impact. Perhaps even more important, an active Navy, merchant marine and industrial base is a real deterrent to any aggressor.

THURSDAY, MAY 11, 1989.

NATIONAL STEEL AND SHIPBUILDING CO.

WITNESSES

RICHARD VORTMANN, PRESIDENT, NATIONAL STEEL AND SHIPBUILDING CO.

DENNIS TONEY, EXECUTIVE DIRECTOR, INTERNATIONAL ASSOCIATION OF BRIDGE, STRUCTURAL, AND ORNAMENTAL IRON WORKERS

INTRODUCTION

Mr. MURTHA. The next witness is Richard Vortmann of National Steel and Shipbuilding Company. Mr. Vortmann.

SUMMARY STATEMENT OF MR. VORTMANN

Mr. VORTMANN. Mr. Chairman, I am speaking today on behalf of the National Shipbuilding.

I am pleased to have with me Mr. Dennis Toney, who is the Executive Director of the International Association of Bridge, Structural and Ornamental Iron Workers. The iron workers represent half of our production workers.

I will submit my full comments for the record.

WEST COAST SHIPYARD

NASSCO, I believe, speaks to the issue of the desperate condition of our shipyard from a somewhat unique position.

First, being located on the West Coast, we have seen our geographic sector of the industry hit the hardest. Since 1982, nationwide, 41 shipyards have closed at a loss of 32,000 jobs representing a 30 percent decline. Terrible as these statistics are, on the West Coast, they are significantly worse. We have lost 65 percent of our shipyard jobs. NASSCO is now the last remaining active major new construction shipyard existing on the West Coast.

Bethlehem Steel has long since closed their yards on the Coast and Lockheed has now closed their yard in the northwest and auctioned off its equipment and gone into bankruptcy.

NATIONAL STEEL AND SHIPBUILDING RESTRUCTURING

NASSCO was on the verge of being shut down by its parent company, the $2 billion international engineering and construction firm Morrison-Knudsen. Morrison-Knudsen has owned NASSCO for 30 years. They concluded there was no longer a future in domestic——

Mr. MURTHA. You are saying you are on the verge of being closed down. I thought they were working out a deal to keep that open.

Mr. VORTMANN. Six week ago, a management employee buy-out was affected and the shipyard is alive and well under new ownership. That buy-out was conducted to preserve some 2,500 jobs and preserve a shipbuilding capability on the West Coast.

All the employees of NASSCO over the last year and a half have made significant wage sacrifices in an effort to become one of the low-cost producers in our shrinking industry.

Our seven unions have consented to very significant work rule changes as well as wage reductions in order to make that happen. I think that is a very significant tribute to the foresightedness of our union leaders.

In return for those sacrifices on behalf of all the employees, they now share in an innovative profit-sharing program, and with this buy-out, 82 percent of the new company is owned by the employees, both management and union alike.

I think, gentlemen, I would submit that that is a fairly startling evolution and a tremendous experiment in what management and labor committed to survival can do by working together.

INVESTMENTS REQUIRED FOR SURVIVAL

Survival of NASSCO, as the last yard on the West Coast, is not guaranteed in today's environment. The continued viability of NASSCO is fully dependent on securing additional new construction work in the very near future.

I believe Secretary of the Navy Ball communicated to this Committee earlier this year during the Navy's deliberations on the contract award for the final three TAOs that NASSCO, with the existing backlog, was a viable operation and there would be a continuation of shipbuilding on the West Coast.

Morrison-Knudsen, with 30 years experience in the business and with its capital at risk, did not share the Secretary's vision of NASSCO's future, nor do I. I believe the Secretary's conclusion was, in fact, incorrect. Without additional new work, NASSCO will not remain viable on the West Coast and no new construction activity will perpetuate.

To properly function as a full-service shipyard, and I assume I speak for the other yards when I say this, we need to invest continually in new productivity-enhancing plant equipment.

We need to be able to afford the requisite training programs for our trades people to give them the broad array of skills necessary for a versatile and productive work force.

We need to be able to invest in the development of new ship design and production methodologies, and we need to be able to continually attract the best and the brightest engineering and production management college graduates.

To do these things, NASSCO and the other shipyards who are struggling, need at least twice the current volume that they have to be able to have the funds available to affect those improvements.

I believe there is no mystery as to the root cause of the plight of the United States shipyards. It is the complete collapse of the commercial shipbuilding market in this country. We had an industry which was launching commercial ships at an average rate of some 20 ships per year in the seventies. NASSCO alone built 16 tankers from 1976 to 1980. Now, ten years later, in a similar five year period, only five commercial ships have been built in total in the entire United States industry.

Since 1984, there have been no new commercial ship contracts signed in this country. That is a staggering fact and one which I believe has grave consequences for the defense mobilization base of this country.

We do not have a merchant marine capable of sustaining the sealift capability of our country in time of conflict, and we do not have the shipbuilding and the battle damage ship repair capability to replenish our Navy nor our merchant sealift capacity, such as it is, in times of prolonged conflict.

We continue to see new construction capacity shut down and facilities sold off and we believe this has an immediate impact of less competition for the Navy in its new programs, but more importantly with the continued low volume in the marketplace surviving yards continue to limp along unable to afford the requisite investment in facilities, people, and methodologies to improve their productivities.

The net result, we maintain, is that the Navy will pay higher prices for their ships in the future.

I will conclude my comments there. I think our shipyard's recommendations for actions in the future have already been summarized.

Thank you, Mr. Chairman.

Mr. Murtha. Thank you.

[The statements of Mr. Vortmann and Mr. Toney follows:]

STATEMENT BY RICHARD H. VORTMANN,

PRESIDENT AND CEO

NATIONAL STEEL AND SHIPBUILDING COMPANY

SAN DIEGO, CALIFORNIA

ON

MAY 11, 1989

BEFORE

HOUSE APPROPRIATIONS COMMITTEE

DEFENSE SUBCOMMITTEE

MR. CHAIRMAN, I AM DICK VORTMANN, PRESIDENT AND C.E.O. OF THE NATIONAL STEEL AND SHIPBUILDING COMPANY (NASSCO). I AM VERY PLEASED TO HAVE WITH ME THIS MORNING MR. DENNIS TOMEY, EXECUTIVE DIRECTOR OF THE INTERNATIONAL ASSOCIATION OF BRIDGE, STRUCTURAL AND ORNAMENTAL IRON WORKERS. THE IRON WORKERS REPRESENT ABOUT ONE-HALF OF THE PRODUCTION EMPLOYEES AT OUR SHIPYARD. SIX OTHER UNIONS REPRESENT THE OTHER 50%.

MR. CHAIRMAN, I APPRECIATE THIS OPPORTUNITY TO SHARE WITH THIS DISTINGUISHED SUBCOMMITTEE OUR VIEWS ON THE DESPERATE CONDITION OF OUR NATION'S SHIPYARD INDUSTRIAL BASE.

NASSCO IS LOCATED IN SAN DIEGO, CALIFORNIA CONTIGUOUS TO THE SAN DIEGO NAVAL STATION THE SECOND LARGEST NAVAL FACILITY IN THE COUNTRY. NASSCO IS A BUILDER OF COMMERCIAL SHIPS AS WELL AS AUXILIARY AND AMPHIBIOUS SHIPS FOR THE NAVY. OVER THE YEARS NASSCO'S PRODUCT HAS BEEN SPLIT ROUGHLY 50-50, BETWEEN NAVY AND COMMERCIAL. NASSCO HISTORICALLY HAS EMPLOYED SOME 4,500 TO 6,000 PEOPLE IN NEW SHIP CONSTRUCTION AND NAVY REPAIR. CURRENTLY WE EMPLOY SOME 2,500 PEOPLE AND WE ARE BUILDING TWO OF THE NEW AOE'S WITH A 3rd. AND 4th. UNDER OPTION.

NASSCO, I BELIEVE SPEAKS TO THE ISSUE OF THE DESPERATE CONDITION OF OUR NATION'S SHIPYARDS FROM A UNIQUE POSITION.

FIRST, BEING LOCATED ON THE WEST COAST, WE HAVE SEEN OUR GEOGRAPHIC SECTOR OF THE INDUSTRY HIT THE HARDEST. SINCE 1982, NATIONWIDE 41 SHIPYARDS HAVE CLOSED AT A LOSS OF 32,000 JOBS WHICH REPRESENT A 30% DECLINE. TERRIBLE AS THESE STATISTICS ARE NATIONWIDE, ON THE WEST COAST WE HAVE LOST 65% OF OUR SHIPYARD JOBS. NASSCO IS NOW THE LAST REMAINING MAJOR ACTIVE NEW CONSTRUCTION SHIPYARD ON THE WEST COAST. BETHLEHEM STEEL HAS LONG SINCE CLOSED ITS YARDS ON THE WEST COAST, LOCKHEED HAS NOW CLOSED ITS YARD AND AUCTIONED OFF ITS EQUIPMENT, AND TODD IS IN BANKRUPTCY.

NASSCO ITSELF WAS ON THE VERGE OF BEING SHUT DOWN BY ITS PARENT COMPANY, THE $2 BILLION INTERNATIONAL ENGINEERING AND CONSTRUCTION FIRM, MORRISON KNUDSEN. MORRISON KNUDSEN OR MK, WHICH HAD OWNED NASSCO FOR 30 YEARS, CONCLUDED THERE WAS NO LONGER A FUTURE IN DOMESTIC SHIPBUILDING AND EMBARKED ON A PROGRAM OF SELLING OFF NASSCO'S BACKLOG OF AOE'S AND CLOSING THE YARD.

TO PRESERVE THE CURRENT 2,500 JOBS IN SAN DIEGO AND TO PRESERVE SHIPBUILDING CAPABILITY ON THE WEST COAST, MANAGEMENT AND THE EMPLOYEES EFFECTED A BUYOUT OF NASSCO FROM MK JUST THREE WEEKS AGO.

ALL EMPLOYEES AT NASSCO IN THE LAST YEAR AND A HALF HAVE MADE SIGNIFICANT WAGE SACRIFICES IN AN EFFORT TO BECOME ONE OF THE LOW COST PRODUCERS IN OUR SHRINKING INDUSTRY. NASSCO'S 7 UNIONS ALSO CONSENTED TO SIGNIFICANT WORK RULE CHANGES DESIGNED TO SUBSTANTIALLY IMPROVE PRODUCTIVITY. FOR EXAMPLE MANAGEMENT CAN NOW HAVE A WORKER IN ONE UNION DO ANY WORK THAT'S REQUIRED AT THE MOMENT EVEN IF IT IS IN ANOTHER UNION'S JURISDICTION. AND THAT IS A SIGNIFICANT TRIBUTE TO THE FORESIGHTEDNESS OF OUR UNION LEADERS. IN RETURN FOR THERE SACRIFICES AND INNOVATIONS, ALL EMPLOYEES, BOTH MANAGEMENT AND UNION, PARTICIPATE IN A PROFIT SHARING PROGRAM IN WHICH 1/3 rd. OF THE COMPANY'S PRE TAX PROFITS ARE DISTRIBUTED IN CASH EACH YEAR.

ADDITIONALLY, NOW WITH THE MANAGEMENT - EMPLOYEE BUYOUT OF NASSCO, ALL EMPLOYEES, AGAIN BOTH MANAGEMENT AND UNION ALIKE, OWN 82% OF NASSCO THROUGH AN EMPLOYEE STOCK OWNERSHIP PLAN (OR ESOP).

THIS GENTLEMEN, I SUBMIT IS A STARTLING EVOLUTION AND A TREMENDOUS EXPERIMENT OF WHAT MANAGEMENT AND LABOR, COMMITTED TO SURVIVAL, CAN DO BY WORKING TOGETHER.

HOWEVER, THE SURVIVAL OF NASSCO IS BY NO MEANS GUARANTEED IN TODAY'S SEVERELY DEPRESSED SHIPBUILDING INDUSTRY. THE CONTINUED VIABILITY OF NASSCO IS TOTALLY DEPENDENT UPON SECURING ADDITIONAL NEW CONSTRUCTION WORK IN THE VERY NEAR FUTURE. SECRETARY OF NAVY BALL COMMUNICATED TO THIS COMMITTEE EARLIER THIS YEAR DURING THE NAVY'S DELIBERATIONS ON THE CONTRACT AWARD FOR THE FINAL THREE TAO'S THAT NASSCO, WITH ITS EXISTING WORK, WAS A VIABLE OPERATION. OBVIOUSLY MORRISON KNUDSEN, WITH 30 YEARS OF EXPERIENCE IN THE BUSINESS AND WITH ITS CAPITAL AT RISK, DID NOT SHARE THE SECRETARY'S VISION OF NASSCO'S FUTURE. NOR, FRANKLY, DO I. SECRETARY BALL'S CONCLUSION WAS IN FACT INCORRECT. WITHOUT ADDITIONAL NEW WORK, NASSCO, AS THE LAST REMAINING NEW CONSTRUCTION YARD ON THE WEST COAST, IS NOT VIABLE. THAT IS THE FACT OF THE MATTER. I BELIEVE EVEN THE NAVY NOW UNDERSTANDS THIS REALITY AS WELL. THE IN-DEPTH ANALYSIS THE NAVY PERFORMED ON NASSCO AS A PREREQUISITE TO THEIR CONSENT TO THE ESOP

BUYOUT CLEARLY WAS BASED ON FORECASTS WHICH ASSUMED ADDITIONAL NEW BUSINESS AS A CRITICAL, NECESSARY INGREDIENT FOR NASSCO"S CONTINUED VIABILITY.

TO PROPERLY FUNCTION AS A MAJOR FULL SERVICE SHIPYARD PERFORMING BOTH NEW CONSTRUCTION AND REPAIR, INVESTING CONTINUALLY IN NEW PRODUCTIVITY ENHANCING PLANT AND EQUIPMENT, AFFORDING THE REQUISITE TRAINING PROGRAMS FOR OUR TRADES PEOPLE TO GIVE THEM THE BROAD ARRAY OF SKILLS NECESSARY FOR A VERSATILE AND PRODUCTIVE WORKFORCE, TO INVEST IN THE DEVELOPMENT OF NEW DESIGN AND PRODUCTION METHODOLOGIES, AND TO CONTINUALLY ATTRACT THE BEST AND BRIGHTEST ENGINEERING AND PRODUCTION MANAGEMENT COLLEGE GRADUATES - TO DO THESE THINGS WHICH ARE NECESSARY FOR LONG TERM VIABILITY, NASSCO NEEDS SOME 7 TO 10 MILLION MANHOURS OF WORK EACH YEAR. CURRENTLY NASSCO HAS LESS THAN 1/2 OF THIS REQUISITE BUSINESS VOLUME IN BACKLOG, WITH THE AOE'S AND OUR REPAIR BUSINESS.

THERE IS NO MYSTERY AS TO THE ROOT CAUSES OF THE CURRENT PLIGHT OF THE U.S. SHIPYARDS. IT IS THE COMPLETE COLLAPSE OF THE COMMERCIAL SHIPBUILDING MARKET IN THIS COUNTRY.

WE HAD AN INDUSTRY WHICH WAS LAUNCHING NEW COMMERCIAL SHIPS AT AN AVERAGE RATE OF 20 SHIPS PER YEAR IN THE LATE 1970'S. NASSCO ALONE BUILT SIXTEEN TANKERS FROM 1976 TO 1980. NOW, JUST 10 YEARS LATER IN A SIMILAR FIVE YEAR PERIOD, ONLY 5 COMMERCIAL SHIPS HAVE BEEN BUILT IN TOTAL IN THE ENTIRE U.S. INDUSTRY. NASSCO WAS FORTUNATE TO BUILD 2 OF THOSE 5 SHIPS AND OUR LAST WAS DELIVERED IN EARLY 1987. SINCE 1984, THERE HAVE BEEN NO NEW COMMERCIAL SHIP CONTRACTS SIGNED IN THIS COUNTRY. ZERO-NONE! THAT IS A STAGGERING FACT AND IT IS ONE WHICH I BELIEVE HAS VERY GRAVE CONSEQUENCES FOR THE DEFENSE MOBILIZATION BASE OF THIS COUNTRY.

WE DO NOT HAVE A U.S. MERCHANT MARINE CAPABLE OF SUSTAINING THE SEALIFT CAPABILITY OF OUR COUNTRY IN TIME OF CONFLICT, NOR DO WE HAVE THE SHIPBUILDING AND BATTLE DAMAGE SHIP REPAIR CAPABILITY TO REPLENISH OUR NAVY NOR OUR MERCHANT SEALIFT CAPACITY, SUCH AS IT IS, IN TIME OF PROLONGED CONFLICT. WE CONTINUE TO SEE NEW SHIP CONSTRUCTION CAPACITY SHUT DOWN AND FACILITIES SOLD OFF. THIS HAS AN IMMEDIATE IMPACT OF LESS COMPETITION FOR THE NAVY IN NEW PROGRAMS. BUT MORE IMPORTANTLY WITH THE CONTINED LOW VOLUME IN THE MARKET PLACE, THE SURVIVING YARDS CONTINUE TO LIMP ALONG UNABLE TO AFFORD THE REQUISITE INVESTMENT IN FACILITIES, PEOPLE AND METHOLODOGIES TO IMPROVE PRODUCTIVITY AND PRODUCT QUALITY. THE NET RESULT IS THAT NAVY NEW BUILDINGS COST MORE IN THE LONG RUN.

NOT WITHSTANDING THE VITAL, VESTED INTEREST THE U.S. NAVY HAS IN FINDING A SOLUTION TO THIS GRAVE PROBLEM, THE NAVY CANNOT SOLVE THIS PROBLEM BY ITSELF WITHIN ITS OWN BUDGET CONSTRAINTS.

AND MR. CHAIRMAN, WE AS A COUNTRY MUST NO LONGER TRY TO STOP THE HEMORRHAGING OF OUR INDUSTRY WITH SMALL BANDAID SOLUTIONS. THE BUILDING OF THE LAST THREE TAO'S AND THE CURRENT PENDING DECISION REGARDING WHO WILL COMPLETE THE TWO TAO'S CURRENTLY AT PENNSYLVANIA SHIPBUILDING - THESE TWO ISSUES ARE NOTHING MORE THAN BANDAIDS. SUCH EFFORTS AND SO CALLED SOLUTIONS I BELIEVE DISTRACT ATTENTION FROM THE REAL PROBLEM.

WE NEED A U.S. GOVERNMENT COMMITMENT TO LONG TERM SOLUTIONS TO ASSURE A LARGE AND VITAL U.S. FLAG MERCHANT MARINE AND A VIABLE U.S. SHIPBUILDING INDUSTRY.

THERE ARE NO EASY SOLUTIONS TO THIS DIFFICULT PROBLEM. REAL SOLUTIONS COME IN TWO BASIC FORMS: ONE SOLUTION TAKES THE FORM OF DIRECT APPROPRIATIONS IN PROCUREMENT OR OPERATION AND MAINTENANCE ACCOUNTS. OR ALTERNATIVELY A SOLUTION TAKES THE FORM OF GOVERNMENTAL POLICIES THAT CREATE CARGO WHICH THEN ALLOWS COMPETITIVE MARKET FORCES TO MEET THIS CREATED DEMAND.

AN EXAMPLE OF THE DIRECT APPROPRIATION APPROACH, AN AREA WHERE I BELIEVE THIS SUBCOMMITTEE COULD MAKE AN IMMEDIATE IMPACT BY TAKING THE LEAD IS TO ADDRESS THE SERIOUS SEALIFT SHORT FALL WHICH OUR NATION FACES. HIGH SPEED RO/RO SHIPS ARE DESPERATELY NEEDED TO MEET OUR NATIONAL STRATEGY OF FORWARD DEFENSE. FROM WHAT I UNDERSTAND, RAPID REINFORCEMENT OF OUR FORWARD-DEPLOYED UNITS IN TIME OF WAR IS AN ACHILLES' HEAL OF OUR ARMED FORCES.

THE NAVY ON MARCH 22, 1989, SUBMITTED A REPORT TO THE ARMED SERVICES COMMITTEES ON THEIR ASSESSMENT OF VARIOUS HIGH-SPEED SHIP TECHNOLOGIES. SECRETARY BALL'S LETTER STATES, "IT WOULD CERTAINLY

BE POSSIBLE TO MAKE A VERY MODEST REDISTRIBUTION OF TRANSPORTATION FUNDS TO INITIATE A MONOHULL PROGRAM BASED ON IN-SERVICE TECHNOLOGY. THIS WOULD INCREASE OUR FAST SEALIFT CAPABILITY, PROVIDE IMMEDIATE WORK TO THE MARITIME INDUSTRIAL BASE HARD PRESSED BY LACK OF COMMERCIAL SHIPBUILDING, PRESERVE A SECTOR OF THE MARITIME INDUSTRIAL BASE THAT MIGHT OTHERWISE NOT SURVIVE, AND PROVIDE IMPROVED CAPABILITY IN THE RELATIVELY NEAR TERM." THE REPORT RECOMMENDS A HIGH-SPEED, CONVENTIONAL HULL SHIP DESIGN WHICH COULD PROCEED TO CONTRACT QUICKLY.

THE PROBLEM IS THAT THESE SHIPS ARE NOT IN THE PRESIDENT'S BUDGET BECAUSE THERE IS NOT YET AN OPERATIONAL REQUIREMENT. YOUR LEADERSHIP TO PROVIDE FUNDING IN THIS PRIORITY AREA WOULD HAVE IMMEDIATE IMPACT. A SERIES SHIP FUNDED OVER SEVERAL FISCAL YEARS AT A TOTAL COST OF $200-250 MILLION PER VESSEL WOULD GIVE OUR ARMED FORCES A SIGNIFICANTLY INCREASED CAPABILITY TO RESUPPLY TROOPS ON A DISTANT BEACH HEAD AND COULD PRESERVE TWO SHIPYARDS, IN THE NEAR TERM.

THE OTHER ASPECT OF SEALIFT SHORT FALL WHICH IS ALWAYS A MAJOR CONCERN TO THE MILITARY IS IN THE PRODUCT TANKER AREA. TANKERS ARE NEEDED TO CARRY THE FUEL TO RUN THE UNIT EQUIPMENT FORWARD DEPLOYED

AND TO RESUPPLY OUR NAVAL FORCES IN TIME OF CONFLICT. A SIGNIFICANT PORTION OF THE NAVY CONTROLLED TANKER CAPACITY WILL IN A FEW YEARS, DUE TO THEIR ADVANCED AGE HAVE TO COMPLY WITH THE PORT AND TANKER SAFETY ACT. THIS WILL REDUCE TANKER CAPACITY OR WILL REQUIRE SIGNIFICANT CAPITAL INVESTMENT TO RETROFIT 15 YEAR OLD SHIPS. IF THE SUBCOMMITTEE COULD PROVIDE FUNDING TO BUILD OR PROVIDE LONG TERM CHARTER AUTHORITY FOR A SERIES OF 40,000 DWT TANKERS WHICH COULD CARRY NAVY CARGO IN PEACETIME, THE NAVY COULD PROCEED TO CONTRACT QUICKLY. THE NAVY WOULD GET NEW, MODERN, EFFICIENT SHIPS AND ALLOW THOSE BEING REPLACED TO BE ADDED TO THE RESERVE FLEET. SUCH A PROGRAM WOULD PRESERVE ANOTHER YARD FOR SEVERAL YEARS.

MR. CHAIRMAN, THESE SEALIFT PROGRAMS, WHILE CERTAINLY MORE THAN BANDAIDS, ARE NOT BY THEMSELVES LONG TERM, REAL SOLUTIONS TO OUR SHIPBUILDING INDUSTRY'S PROBLEMS. NASSCO HAS ALWAYS FAVORED THE POSITION THAT THE LONG TERM SOLUTION INVOLVES CARGO: SHIPS WILL BE BUILT IF THERE IS CARGO ECONOMICALLY AVAILABLE TO BE CARRIED. WE CURRENTLY HAVE A NUMBER OF CARGO PREFERENCE PROGRAMS RELATING TO GOVERNMENT CARGOES WHICH ARE BY AND LARGE THE MAIN REASON WE STILL HAVE ANY U.S. MERCHANT MARINE TODAY. UNFORTUNATELY, THESE PROGRAMS ARE CURRENTLY BEING

IMPLEMENTED WITHOUT A FOCUS ON THE REAL OBJECTIVE UNDER WHICH THEY WERE ENACTED. THE CONGRESSIONAL INTENT WAS TO FOSTER A HEALTHY U.S. MERCHANT MARINE AND SHIPBUILDING INDUSTRY. THE SHIPS CARRYING OUR GOVERNMENT CARGOES ARE AGING AND NEED TO BE RENEWED, BUT I DON'T BELIEVE THEY WILL BE RENEWED UNDER OUR CURRENT INCONSISTENT POLICY.

WE NEED TO MANDATE FULL COMPLIANCE OF OUR EXISTING CARGO PREFERENCE LAWS. BUT MORE IMPORTANTLY, WE WOULD PROPOSE A BOLD NEW POLICY THAT FOLLOWS A RECOMMENDATION OF PRESIDENT'S REAGAN'S COMMISSION ON MERCHANT MARINE AND DEFENSE BUT WITH SOME IMPORTANT CHANGES. A PHASED-IN 100% REQUIREMENT TO USE U.S. BUILT, U.S. OWNED AND OPERATED SHIPS FOR ALL GOVERNMENT CARGOES (OWNED AND IMPELLED INCLUDING CEMENT AND CLINKERS AND MILITARY) IN SHIPS OF 20 YEARS OR YOUNGER. WE FEEL THE TRANSPORTATION COST FOR THESE PREFERENCE CARGOES SHOULD BE CONSOLIDATED AT MARAD AND TAKEN OUT OF AGRICULTURE, D.O.D., ETC., IN ORDER TO ENSURE COMPLIANCE.

MR. CHAIRMAN, I KNOW THAT MANY MAY HAVE PROBLEMS WITH THE CONCEPT OF PROTECTIONISM FOR OUR U.S. INDUSTRY, HOWEVER, WITHOUT SIMILAR POLICIES SUCH AS THE VRA ON STEEL IMPORTS WHICH PROTECT U.S. INDUSTRY

FROM FOREIGN SUBSIDIES, BASIC U.S. INDUSTRY WILL NOT SURVIVE AND HAVE THE TIME AND FINANCIAL RESOURCES TO CONTINUE PRODUCTIVITY IMPROVEMENTS.

WITHOUT A HEALTHY DOMESTIC SHIPBUILDING INDUSTRY, OUR NAVY AND THEREFORE THE U.S. TAXPAYERS WILL PAY MORE FOR THEIR SHIPS IN THE LONG RUN AND OUR COUNTRY JUST WILL NOT HAVE AN ADEQUATE DEFENSE INDUSTRIAL MOBILIZATION BASE WHEN IT COMES TO NAVAL BATTLE DAMAGE AND SEALIFT REPLACEMENT TONNAGE.

WITHOUT SOME DRAMATIC ACTION FROM THE 101ST. CONGRESS, I FIRMLY BELIEVE THE U.S. SHIPBUILDING INDUSTRY WILL CONTINUE TO SHRINK TO A LEVEL WHICH WILL SERIOUSLY JEOPARDIZE OUR NATIONAL SECURITY. WE NEED TO ACT NOW BEFORE IRREPARABLE DAMAGE IS DONE. SHUT DOWN SHIPYARDS ARE NOT MOTHBALLED FOR FUTURE USE IN EMERGENCIES. THEY ARE CONVERTED TO OTHER NON-SHIPBUILDING ECONOMIC USE. I STRONGLY SUBMIT TO YOU WE MUST STOP THIS INDUSTRY DEMISE NOW.

Statement of Mr. Dennis Toney

Executive Director

International Association of Bridge, Structural,

and Ornamental Ironworkers

on

May 11, 1989

Before

House Appropriations Committee

Defense Subcommittee

Mr. Chairman, I am Dennis Toney, Executive Director, International Association of Bridge, Structural, and Ornamental Ironworkers.

In the early 1940's, we were the labor group which first organized NASSCO and have had a collective bargaining agreement at NASSCO since that time. For over 45 years, we have represented 50% or more of the production workers at NASSCO. At one time, we had almost 4,000 members working at the shipyard, but today, we have only about 25% of that number. The last several years NASSCO employed the lowest number of our workers ever.

Mr. Chairman, we have seen NASSCO in the good times and the bad. We have never experienced the devastation to our members and their families of the last several years. The nation was close to losing its last major shipyard on the West Coast if NASSCO closed. Let me repeat, NASSCO is the only one left.

Labor and management at NASSCO have forged a new relationship in order to be a survivor. A new four year contract includes wage reductions, some up to 50%. The average journeyman wages were cut 20%. We have negotiated a liberal profit sharing plan designed to increase productivity and morale. We have accepted new work rules to increase productivity. We have accepted participation in the new ESOP at NASSCO, which gives every NASSCO employee a personal stake in our company's future.

Mr. Chairman, what we now need are opportunities to put our workers back to work. As Mr. Vortmann outlined, we would ask this Committee to address the serious sealift shortfall and shipyard capacity loss which our nation faces by providing funding and/or legislative authority to build fast sealift ships and product tankers. NASSCO has recent experience with both of these types of ships. Given these opportunities, we are confident that our NASSCO team can win additional work and assure that we do not lose U.S. West Coast shipbuilding capability altogether.

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THURSDAY, MAY 11, 1989.

BETHLEHEM STEEL CORP.

WITNESS

DAVID H. KLINGES, VICE PRESIDENT FOR MARITIME AFFAIRS, BETHLEHEM STEEL CORP.

INTRODUCTION

Mr. MURTHA. Next, we have Mr. David Klinges of Bethlehem Steel. Mr. Klinges.

SUMMARY STATEMENT OF MR. KLINGES

Mr. KLINGES. With your permission, Mr. Chairman, I would like to highlight the contents of the statement which I have submitted for the record.

On behalf of Bethlehem Steel, I would like to support Mr. Stocker's presentation from the perspective of Bethlehem Steel's perception of the deteriorating shipbuilding industrial base based upon our own corporate experience.

In 1981, the construction differential subsidy program, which was enacted as part of the Merchant Marine Act of 1936, was summarily terminated. From that day forward, essentially commercial shipbuilding in this country has collapsed.

We were told by the Administration that while a new maritime policy would be formulated, we were instructed to become world competitive and sharpen our pencils and take on the world, this in the face of what has been described as being rampant subsidization by the rest of the world shipbuilding nations.

The EEC supports 26 to 28 percent subsidy. Japan supports five percent financing; the Norwegians one percent financing.

Yet, we are told that with the highest standard of living in the word that we should be competitive with the world. It is an impossible task.

As a result, our commercial building absolutely disappeared not only to foreign trade ships—there were no ships built for the foreign trade, but the Jones Act trade disappeared as well.

Implicit in the lack of a maritime policy was the suggestion that the Navy work would be enough to support the commercial shipyards in this country. The fact is that over 90 percent of the work that was awarded by the Navy was awarded to five yards. The rest of the industry was asked to compete against each other for the remaining ten percent of the Navy shipbuilding dollar. Predictably, this generated cut-throat competition among the yards, which has led to the conclusion that none is profitable. We are all having our problems and as a consequence, the yards are disappearing and the remaining yards are in jeopardy.

Bethlehem Steel during World War II was the biggest shipbuilding organization in the world. At the peak, we had 184,000 people in our shipyards. We built over a thousand ships. It has been suggested with some justification that without the ships that were built by Bethlehem, the war might have been lost.

The fact of the matter is that as we came into this decade, we had over 10,000 people working in Bethlehem yards, in nine shipyards. Today we have but two shipyards left and employ less than 1,000 workers. I don't think that any other organization has taken the hit that we have. Basically, this is the result of our corporation's response to the market by rationalizing and down-sizing our assets in reflection of the lack of a marketplace. Labor and management ashore and afloat alike recognize the need for a new merchant marine and shipbuilding program.

The Commission on Merchant Marine and Defense and the Defense Science Board have recognized the need and the prioritization that is required to maintain this national asset.

We fully support the recommendations that the Shipbuilders Council have made. We believe the time is now. We do need sealift tankers, fast sealift vessels. The time to get about building them is now, because at this time next year, I submit that probably there will be two or three less shipyards around capable of building those.

The program that Mr. Haggett outlined of 10 to 12 vessels would constitute only one percent of the world's shipbuilding market.

As the biggest trading nation in the world, we think that requesting a program that would support one percent of the shipbuilding in the world is not an aggressive program.

The time, however, to act on this recommendation is now, and I would hope that this Committee would be instrumental in bringing back the implementation of these recommendations.

I thank you, sir.

Mr. MURTHA. Thank you very much.

[The statement of Mr. Klinges follows:]

Statement of

David H. Klinges
Vice President
Maritime Affairs
Bethlehem Steel Corporation

Before the

Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives

on

The Shipbuilding Industrial Base

May 11, 1989

I am pleased to appear before this respected Subcommittee to supplement the statement of John J. Stocker, President of the Shipbuilders Council of America, and to share with you Bethlehem Steel's perception of the deteriorating shipbuilding industrial base based upon our own corporate experience.

For some 4 1/2 decades the shipbuilding industry operated under the Merchant Marine Act of 1936, with shipyards receiving construction differential subsidy for vessels built for American ship owners receiving operating differential subsidy. Under this program hundreds of ships were built providing a base load for American shipbuilders. The level of ship construction under this program varied in response to economic demands, but a number of shipyards, including Bethlehem's, depended upon the work generated under this program, and were able to plan with some confidence what their future market might be. Capital investments were made and management and labor recruited and trained with some confidence in a potential return on investment. For shipyards like Bethlehem's, companies oriented to commercial construction of tankers and liners, principally for employment in Jones Act trades or in ODS supported foreign commerce, opportunities were provided from time to time to build also for the Navy vessels similar to their major commercial orientation, principally auxiliary and support vessels. On this basis yards were able to earn a reasonable return on their investment.

From 1981 on, the outlook for commercially oriented shipyards dramatically changed. For reasons which are difficult to comprehend, the Reagan Administration determined that the shipbuilding industry no longer merited the support provided by the 1936 Act's Construction Differential Subsidy program. The Administration failed to recognize that ships are a commodity which can be bought by commercial operators from sources abroad which enjoy considerably lower labor costs. Aggravating the labor cost difficulties was the long term policy of a number of major foreign shipbuilding nations to maintain employment in their labor intensive facilities by utilizing a combination of support programs embracing not only direct labor subsidies but innovative financing schemes to make construction in their shipyards attractive against other foreign competitors. Directly and impliedly the Administration signaled the American shipyards that the major naval reconstruction program would supplant the normal commercial market. For those shipyards not fortunate enough to fully participate in Navy work, we were charged to become world competitive, whatever that meant, by "sharpening our pencils" to penetrate the world shipbuilding market. How realistic is this approach in the face of the unfair trading practices engaged in in the international shipbuilding community?

Last Fall I accompanied John Stocker with a State Department delegation to a meeting in Tokyo of a Subgroup of the Organization for Economic Cooperation and Development. It is interesting to note that this was the first time in 25 years of such meetings that our State Department participated in these international deliberations. It was a revelation to watch the combination of the EEC nations with other European shipbuilders meeting with the Japanese and later with the South Korean shipbuilders to establish the ground rules for worldwide shipbuilding. The EEC had agreed to permit its member nations to subsidize their shipbuilding at an agreed level of 26% of the contract price. The Japanese sought agreement on the interest rates to be charged on ship financing at the 5% level. Is it any wonder that American shipbuilders are deemed uncompetitive with no government subsidy assistance in the face of 26% subsidies and 5% financing charges?

While being charged to improve our competitiveness, the government has advised the industry, shipbuilders and marine suppliers alike, that the whole question of maintenance of the shipyard mobilization base was under review and that a new policy would be forthcoming. We have yet to see this policy articulated in clear terms. As a consequence of the Reagan Administration's annual MarAd zero budgets for shipbuilding, there has been no construction of vessels to be employed in the foreign commerce of the United States. Moreover, there have been very limited opportunities to build vessels for employment in the Jones Act trades.

The vaunted naval new construction program has produced considerable numbers of vessels, principally combatant vessels, for which five major yards in this country have been the principal beneficiaries - receiving over 90% of the defense new ship construction dollar. That leaves the balance of the commercially oriented yards with no commercial work, leading them to engage in vicious competition for less than 10% of the ship procurement dollar being expended on the few naval auxiliary and support vessel programs. Predictably this has resulted in the elimination of a number of the yards, which you are already aware of, and pronounced economic distress in the few remaining yards continuing to pursue the limited naval auxiliary market. As a consequence there are now but 11 shipyards in this country today with over 1,000 employees.

The five major yards engaged in the naval combatant program employ the vast majority of the total manpower, and the remaining yards face wind down of their programs over the next year or two. What should a prudent business man do faced with current policies? What Bethlehem has done is to continue downsizing its shipbuilding assets over the last six years. Bethlehem, once the world's largest shipbuilder with a wartime peak of 184,000 employees, came into this decade with over 10,000 employees. Now, with the shutdown of six repair yards early in the decade and its Beaumont new construction facility last year, Bethlehem is currently employing less than 1,000 employees. Moreover, most of these shipyard workers face layoff with the conclusion of our current navy program in early 1990.

It may be suggested that diminution of Bethlehem's presence in the market place is simply a reflection of a poor world market or worse, bad management, and is desirable to continue the rationalization of the American shipbuilding industry. As to the first point, clearly we are only part of a general worldwide malaise. In addition to a considerable number of foreign shipyard closings, we have seen two domestic organizations similarly situated, enjoying strong corporate support, Lockheed, Seattle and General Dynamics, Quincy, facing up to the verities of the situation and closing their doors. The biggest independent American shipbuilder, Todd Shipyards, sought protection under Chapter XI of the Bankruptcy Code and is reorganizing in an effort to emerge as a smaller but hopefully viable organization. The few remaining shipyards of similar orientation are experiencing heavy losses with virtually no prospects for work for which they can profitably compete. Clearly the five major combatant construction yards for the U.S. Navy with backlogs reaching into the mid 90's will survive and prosper, but the remaining six shipyards, including Bethlehem, have an extremely grim outlook.

It may be constructive to reflect on the combination of circumstances which led to the 1981 scrapping of government support for commercial shipbuilding. To be sure, there had been a general perception that the CDS program was inefficient and counterproductive. However, the allegations lodged against CDS were equally valid against a whole panoply of spending programs, including energy subsidies, UDAG, Economic Development Administration, The Appalachian program, Amtrak, postal and mass transit subsidies, support of the Small Business Administration, and highway and airport projects. While such programs were tarred by the same brush as construction differential subsidies, one significant fact distinguished them from CDS: Each such pork barrel program had a strong political advocate. David Stockman, the Director of Office and Management and Budget in the early Reagan Administration in his book "The Triumph of Politics" recites to his dismay that efforts to eliminate subsidies for this range of programs proved to be politically unfeasible.

Secretary of Housing and Urban Development Samuel Pierce made it an article of faith to protect the dubious projects supported by UDAG. Arch conservative Senator Orrin Hatch stood as Horatio at the Bridge in defense of the Job Corps in his position as Chairman of the Senate Human Resource Committee. Tobacco subsidy found its savior in Senator Jesse Helms of North Carolina. The Clinch River Breeder Reactor program was backed by Senator Howard Baker. Rural electrification found in Senator Strom Thurmond of South Carolina the staunchest of advocates. The combination of rural Republican representatives and southern Democratic Boll Weevils established a Maginot Line against any diminution of agricultural subsidies, which aggregate over twenty billion dollars annually to preserve hundreds of thousands of less efficient farmers. But where was the support for the American shipbuilder? Because of geographical distribution, fragmentation of party support as well as the lack of commonality of interest in the sense that those yards with major Navy contracts who depended solely upon this market had little interest in making an issue of CDS, the program was allowed to lapse for lack of funding. Thus, we stand today with no commercial shipbuilding taking place and with questionable capability of American shipyards to respond should a commercial program ever become a reality.

A major obstacle preventing realization of a maritime program for the United States is the wide perception shared principally by Congress and the media and fostered by Administration spokesmen that the industry is riven by discord, that is, the various principal segments - ship operators, seagoing labor unions and shipbuilders have no commonality of interest in developing a program designed to effect the rebirth of the American merchant marine. While unquestionably there is some basis for this perception, the fact remains that there is ample evidence to indicate that the case is overdrawn.

Maritime unions troubled by falling membership and laboring under take-back agreements have been most statesmanlike over the past decade in pursuing their goals. They have supported collective efforts to advance the cause of the maritime industry, have merged and combined within their own house, have minimized the jurisdictional frictions which had often characterized the industry, have accepted greater flexibility in work rules, and have reduced labor rates indicating by their willingness to work in concert with others a desire to preserve the industry.

Shipbuilders and operators alike have rationalized by downsizing their operations in an effort to obtain financial stability by operating at lower levels seeking improved productivity. But while the private sector downsized, paradoxically the number of employees in government owned yards and the number of government owned vessels increased! Shipbuilders, of course, appreciate that American operators of liners or bulk vessels cannot be competitive in worldwide commerce with the disadvantage of higher capital investments imposed by unsubsidized American construction. And some operators would be willing to build in American shipyards were the penalty imposed by American construction removed by equalization with foreign construction costs. It is, of course, recognized that operators were permitted a few years ago to build abroad in an effort to improve their competitiveness but lamentably the ability to build foreign was no guarantee of profitability and over the last decade a number of major players in U.S. ship operations have disappeared from the scene.

It must be said as well that absent the ability to participate in multi ship construction programs American shipyards will never achieve that level of productivity necessary to assure cost reduction and unfortunately, aside from military construction programs, there have been few projects over the last decade involving more than a maximum of two or three units. This erratic market, of course, prevents investment in capital improvements and facilities and badly needed R&D, and the recruiting and training of necessary personnel.

It would be presumptuous and foolhardy for me to postulate a program leading to the revitalization of the shipbuilding industry when such an exhaustive and thoughtful effort has been reflected in the recommendations of the Commission on Merchant Marine and Defense to President Bush on January 20. The Commission's recommendations, "A Plan for Action" for the implementation of a national program for merchant ship construction in United States shipyards is multi faceted, comprehensive and ambitious. I also believe it to be realistic.

Briefly, it outlines a combination of measures which would generate the market and provide the long sought stability which the industry has lacked. It emphasizes the need for construction of commercial ships in adequate numbers to provide series production with resulting learning curves to increase the capability of American shipyards. It recognizes the need for the mobilization base to include an adequate supplier base capable of providing shipbuilding components, systems and equipment. It provides for the construction of numbers and quality of vessels to satisfy commercial needs yet possessing militarily useful features. It recognizes the usefulness of a procure and charter program using investment capital readily available in the market place to support construction of militarily useful vessels for commercial operation. These recommendations, developed after scores of hearings and years of analysis merit not only close scrutiny but more importantly immediate implementation.

Nor are the Commission's findings and recommendations unique. The Defense Science Board in its December 1988 report on the Defense Industry and Technology Base found that the "deterioration of the maritime industry's base needs to be corrected soon as a priority national security issue" and that while the problem exceeds the reach of DOD alone, it is an issue on which the DOD must take the lead to obtain broad government support. While noting that government financing was necessary to achieve assured capacity, it suggested that the best opportunity available to build and revitalize the maritime industry was to build and operate an increased number of ships. Who can rationally dispute these recommendations?

What are the principal objectives of the American shipbuilding industry today? Clearly for the five major naval new construction yards the objective is to continue to improve productivity through methodology and technology. For all other American yards the key objective is survival. Should stability be achieved in the market place, then the surviving yards will share in the opportunity to improve their competitiveness as well by facility improvements, technology enhancement, and training of personnel. In order to achieve these objectives, the prime need of the industry today is to determine with confidence that a market exists for which it could compete.

Market opportunities and its concomitant stability will provide an opportunity for industry to achieve improved productivity and competitiveness. We have only to look to the steel industry for an example of what might be achieved. For the first six years of this decade the steel industry lost billions of dollars which caused a number of major producers to seek protection under the bankruptcy laws, shut down facilities, lay off labor, curb R&D, and limit capital investment. With enactment of the voluntary restraint agreement mechanism, American industry, assured of a stable market protected from dumped foreign imports, was able over the last two years to achieve a remarkable turn about in its fortunes. Sorely needed profitability was regained, investment in capital facilities was accelerated, improved productivity and quality were realized, and an industry on the edge of extinction recovered with vigor and, being world competitive, anticipates the future with optimism.

There is no reason why a similar miracle cannot take place in American shipbuilding, but the hour is indeed late and absent prompt addressing of the problem I fear that passage of but one or two more years continuing on the present course will find no industry worth salvaging. The country may well enter the decade of the Nineties with but five major shipyards capable of building ocean going vessels for the foreign commerce of the U.S. The Executive branch must provide the leadership to articulate a maritime policy designed to reverse the crisis confronting the industry.

The thrusts of the recommendations made to the President are reflected in the remedial initiatives set forth by Mr. Stocker. We endorse these steps and support efforts to promptly implement programs designed to create a build and charter program for replacement Sealift tankers and the construction of badly needed fast Sealift vessels.

It is fervently hoped that these recommendations will be translated into legislative language supported by all elements of the maritime industry to permit Congress to promptly enact urgently needed legislation to bring about the revival of the industry while there still remains an industry worth reviving.

THURSDAY, MAY 11, 1989.

AVONDALE INDUSTRIES, INC.

WITNESS

ALBERT L. BOSSIER, JR., CHAIRMAN, PRESIDENT, AND CHIEF EXECUTIVE OFFICER, AVONDALE INDUSTRIES, INC.

INTRODUCTION

Mr. MURTHA. Our next witness is Mr. Albert Bossier of Avondale Industries. Mr. Bossier?

SUMMARY STATEMENT OF MR. BOSSIER

Mr. BOSSIER. Good afternoon, Mr. Chairman and distinguished Members of this Committee.

My name is Al Bossier, and I am the President and Chief Executive Officer of Avondale Industries, Inc. located near New Orleans, Louisiana.

I represent the 8,500 workers of Avondale who, in addition to working hard on Navy and other projects, own approximately 50 percent of the company in conjunction with their Employee Stock Ownership Plan.

Thank you for inviting Avondale to appear before you, and thank you for all the support this Committee has given to shipbuilding and repair programs.

STEPS TO SHIPYARD SURVIVAL

The reason I am here today representing a strong and viable competitor for Navy contracts is because the management at Avondale heeded the warnings given by Secretary of the Navy Lehman and senior Navy admirals several years ago. The entire shipbuilding industry was told that only a handful of domestic shipyards would survive into the 1990s.

At that time, Avondale had just lost a series of competitive bids for major Navy projects and our prospects for survival did not appear bright. We decided we had to be one of the surviving yards, and took major steps to achieve this goal.

In September of 1985, the workers of Avondale Industries purchased all the common stock of the company from its former parent, a New York conglomerate. Their ESOP now has a major stake in the company. Consequently, all our worker stockholders receive stock dividends and share in the upward growth of our stock price. In this way, each individual employee has a very direct incentive to perform at his or her highest and best level.

Management took all the needed steps to accelerate Avondale's utilization of modern shipbuilding techniques. Today, Avondale is the most advanced shipyard in the U.S. in the utilization of modular shipbuilding methods.

We looked for other, non-Navy work to perform. With our advanced modular construction techniques, we were able to bid successfully for a $90 million hydroelectric project to be located adjacent to Natchez, Mississippi and a prisoner detention facility for the City of New York to be built at a cost of approximately $125 million.

In addition, we are involved in the construction of toxic waste disposal plants, bridges, small boats, ferries, LCACs, et cetera.

Avondale substantially reduced its overhead costs, and has introduced sophisticated programs to control costs. This makes Avondale more competitive in the naval fabrication marketplace, as well as for the industrial projects of the type described above.

Finally, even though Avondale has the highest pay for first-class craftsman of any of its shipyard competition in the United States, it revised its organization to permit a more efficient utilization of its work force. As a result, it has produced a cost structure that has enabled it to successfully acquire and execute Government as well as major industrial contracts.

These changes, implemented by Avondale management when we were striving to be a surviving shipyard, have helped the Navy to receive money back on every completed contract Avondale has taken since 1976. They have also permitted Avondale to lower our bid prices, win contract awards, and give the Navy better value. Even with this success, Avondale will be operating at only 60-plus percent of capacity in 1990.

DOMESTIC SHIPBUILDING EXPANSION

We support the maintenance and expansion of a strong domestic shipbuilding industrial base, particularly as this base relates to the Navy's ship construction programs.

Avondale recognizes that the commercial ship market and the industrial market do not offer work which will utilize all existing domestic shipyards. We also recognize that true competition by domestic shipyards against foreign shipyards is now effectively prevented by foreign subsidies, reverse dumping, financing concessions, and similar barriers.

Strengthening our domestic shipbuilding industrial base is critical to our country's ability to defend itself. The manner in which we attempt to strengthen our domestic shipbuilding industrial base is just as critical.

We see at least two ways to enhance our domestic shipbuilding industrial base.

First, the shipbuilding industrial base could be maintained and augmented by the establishment of new programs, such as a sealift tanker program, a large fast replenishment ship program, and a carefully considered international trade program which would level the playing field with foreign shipyards and which would truly reward efficiency and productivity.

Second, and equally as important as the first, we can strengthen our domestic shipbuilding industrial base through full competition for contracts, effective competition within the mobilization base itself, and award of contracts based on the "best value" concept.

These principles mean that contract awards would be the result of effective competition, and that all qualified yards would be permitted to compete for so-called mobilization base contracts.

The Administration could determine the dollar impact of adding shipyards to new or existing mobilization base programs, and thus could accept the bids which offer the real "best value."

As articulated by the Navy, "best value" competition stresses making tradeoffs among price, quality, and performance. Of these factors, we believe price to be the most important element. The Navy has embraced the "best value" approach because competition has been accepted as a proven and effective business strategy.

Use of full competition and the "best value" approach would require all domestic shipyards to become more productive and more efficient, and would result in a stronger and long-term domestic shipbuilding industrial base.

This conclusion has been proven at Avondale where the Navy's vigorous use of competition demanded we implement new, more productive ways of building ships. As a result, Avondale is now more efficient, more productive, and a stronger member of the domestic shipbuilding mobilization base.

We sympathize with the concerns facing you as our elected Representatives. The work available to American shipyards since the elimination of construction differential subsidies and other government-sponsored benefits has constituted a small pie. Your dilemma is whether to expand the size of the pie, thereby enabling a larger number of shipyards to survive as members of a larger industrial mobilization base or, with only a small pie to divide, to be concerned with whether to subsidize inefficient operations or to go to the most competitive supplier who will provide the best value to the Navy.

As a representative of an industry that merits serious and immediate attention, I urge you to increase the pie by enacting the types of new programs I have discussed.

In any event, Avondale believes that the shipbuilding industrial base can be strengthened by vigorously applying the concepts of maximum competition to the decision to award new ship construction contracts.

Mr. Chairman, I would be glad to respond to any questions that the Committee may have.

[The statement of Mr. Bossier follows:]

STATEMENT OF

ALBERT L. BOSSIER, JR.
CHAIRMAN, PRESIDENT AND
CHIEF EXECUTIVE OFFICER,
AVONDALE INDUSTRIES, INC.

BEFORE THE

SUBCOMMITTEE ON DEFENSE,
COMMITTEE ON APPROPRIATIONS,
U.S. HOUSE OF REPRESENTATIVES

MAY 11, 1989

Good afternoon, Mr. Chairman and distinguished members of this Subcommittee. My name is Al Bossier, and I am the President and Chief Executive Officer of Avondale Industries, Inc. located near New Orleans, Louisiana. I represent the 8,500 workers of Avondale who, in addition to working hard on Navy and other projects, own approximately 50% of the company in conjunction with their Employee Stock Ownership Plan. Thank you for inviting Avondale to appear before you, and thank you for all the support this Subcommittee has given to shipbuilding and repair programs.

The reason I am here today representing a strong and viable competitor for Navy contracts is because the management at Avondale heeded the warnings given by Secretary of the Navy Lehman and senior Navy admirals several years ago. The entire shipbuilding industry was told that only a handful of domestic shipyards would survive into the 1990s. At that time, Avondale had just lost a series of competitive bids for major Navy projects and our prospects for survival did not appear bright. We decided we had to be one of the surviving yards, and took major steps to achieve this goal:

(a) In September of 1985, the workers of Avondale Industries purchased all the common stock of the company from its former parent, a New York conglomerate. Their ESOP now has a major stake in the company. Consequently, all our worker stockholders receive stock dividends and share in the upward growth of the our stock price. In this way, each individual employee has a very direct incentive to perform at his or her highest and best level;

(b) Management took all the needed steps to accelerate Avondale's utilization of modern shipbuilding techniques. Today, Avondale is the most advanced shipyard in the United States in the utilization of modular shipbuilding methods;

(c) We looked for other, non-Navy work to perform. With our advanced modular construction techniques, we were able to bid successfully for a $90 million hydroelectric project to be located adjacent to Natchez, Mississippi and a prisoner detention facility for the City of New York to be built at a cost of approximately $125 million. In addition, we are involved in the construction of toxic waste disposal plants, bridges, small boats, ferries, LCAC's, etc.;

(d) Avondale substantially reduced its overhead costs, and has introduced sophisticated programs to control costs. This makes Avondale more competitive in the naval fabrication market place, as well as for the industrial projects of the type described above; and

(e) Even though Avondale has the highest pay for first-class craftsman of any of its shipyard competition in the United States, it revised its organization to permit a more efficient utilization of its work force. As a result, it has produced a cost structure that has enabled it to successfully acquire and execute government as well as major industrial contracts.

These changes, implemented by Avondale management when we were striving to be a surviving shipyard, have helped the Navy to receive money back on every completed contract Avondale has taken since 1976. They have also permitted Avondale to lower our bid prices, win contract awards, and give the Navy better value. Even with this success, Avondale will be operating at only sixty-plus percent of capacity in 1990.

We support the maintenance and expansion of a strong domestic shipbuilding industrial base, particularly as this base relates to the Navy's ship construction programs. Avondale recognizes that the commercial ship market and the industrial market do not offer work which will utilize all existing domestic shipyards. We also recognize that true competition by domestic shipyards against foreign shipyards is now effectively prevented by foreign subsidies, reverse dumping, financing concessions, and similar barriers.

Strengthening our domestic shipbuilding industrial base is critical to our country's ability to defend itself. The manner in which we attempt to strengthen our domestic shipbuilding industrial base is just as critical.

We see at least two ways to enhance our domestic shipbuilding industrial base. First, the shipbuilding industrial base could be maintained and augmented by the establishment of new programs, such as a Sealift Tanker Program, a large Fast Replenishment Ship Program, and a carefully considered international trade program which would level the playing field with foreign shipyards and which would truly reward efficiency and productivity.

Second, and equally as important as the first, we can strengthen our domestic shipbuilding industrial base through full competition for contracts, effective competition within the mobilization base itself, and award of contracts based on the "best value" concept. These principles mean that contract awards would be the result of effective competition, and that all qualified yards would be permitted to compete for so-called mobilization base contracts. The Administration could determine the dollar impact of adding shipyards to new or existing mobilization base programs, and thus could accept the bids which offer the real "best value." As articulated by the Navy, "best value" competition stresses making trade-offs among price, quality, and performance. Of these factors, we believe price to be the most important element.

The Navy has embraced the "best value" approach because competition has been accepted as a proven and effective business strategy. Use of full competition and the "best value" approach would require all domestic shipyards to become more productive and more efficient, and would result in a stronger and long-term domestic shipbuilding industrial base. This conclusion has been proven at Avondale, where the Navy's vigorous use of competition demanded we implement new, more productive ways of building ships. As a result, Avondale is now more efficient, more productive, and a stronger member of the domestic shipbuilding mobilization base.

We sympathize with the concerns facing you as our elected representatives. The work available to American shipyards since the elimination of construction differential subsidies and other government-sponsored benefits has constituted a small pie. Your dilemma is whether to expand the size of the pie, thereby enabling a larger number of shipyards to survive as members of a larger industrial mobilization base or, with only a small pie to divide, to be concerned with whether to subsidize inefficient operations or to go to the most competitive supplier who will provide the best value to the Navy. As a representative of an industry that merits serious and immediate attention, I urge you to increase the pie by enacting the types of new programs I have discussed. In any event, Avondale believes that the shipbuilding industrial base can be strengthened by vigorously applying the concepts of maximum competition to the decision to award new ship construction contracts.

I will be glad to respond to any questions that this Subcommittee may have.

SHIPBUILDERS COUNCIL OF AMERICA RECOMMENDATIONS

Mr. **Murtha**. Thank you gentlemen for your statements. Let me just ask, the recommendations look like you are saying to spend money. I assume you are endorsing the Commission on Merchant Marine and Defense recommendations—is that what your recommendations are?

Mr. **Bossier**. That is right.

I am also endorsing the recommendations that Mr. John Stocker made.

Mr. **Murtha**. I looked at his recommendations and it looks like he is saying if we spent over a billion dollars a year, this would solve the problem.

I am wondering, if you have these foreign ships subsidized at the rate of 26 percent, you went from 115,000 to less than 80,000 workers in a year, you talk about modernization and competition and I realize that is part of the solution. But one of the things we did in the steel industry was work out an agreement where only a certain amount of steel could come into the country and it worked very effectively.

You have seen the example. Even though there are a lot less workers, it is a profitable business.

You are not recommending anything like that are you? You don't have any recommendation beyond spending X amount of dollars a year?

Mr. **Stocker**. Mr. Murtha, the full scope of the recommendations that we are making to you really encompass four very distinct events.

One of those is something very similar to the VRA, the elimination of foreign subsidies which we would ask this government to begin the process of trying to negotiate away.

Unfortunately, ships do not work in the same way as steel does so we can't get into a situation where we can prove dumping or we can't prove counterveiling duties because under the trade laws ships are not considered articles of import.

We have also stressed in the material the point of view that we have to improve productivity, we have done that in some respects in some of the programs we have engaged in with the Navy. We need to focus on worker retraining and new research and development. What we tend to see in the sealift programs is a short-term way to provide us with a market opportunity that will allow us to amortize the investment as well as giving us the time to develop new ships and new programs for the future.

I don't think even in the Commission report and recommendations, or in the recommendations that we are proposing that these programs are intended to go on ad infinitum.

We thought with our sealift proposal you could kill two birds with one stone.

Mr. **Murtha**. This Committee has limited jurisdiction.

There is substantial shortfall in Defense dollars for this year, and yet we feel strongly that sealift has to be addressed. I don't know if we could find the money.

Have you made a proposal to the Armed Services Committee to build ships? Have you talked to Mr. Bennett of the Seapower Subcommittee at all about this?

Mr. BOSSIER. Yes, I have talked to Mr. Bennett. I know Mr. Haggett has as well and those discussions are continuing.

Mr. MURTHA. Mr. AuCoin.

SHIPBUILDING RESEARCH AND DEVELOPMENT

Mr. AUCOIN. Thank you, Mr. Chairman.

I would like any one on the panel to speak to some of the R&D needs that the industry has or that you have in your own shipyards. Tell the committee the percentage of revenues you are able, as operators of these shipyards, to plow back into your shipyard for research and development, the critical kinds of investment you should be making in order to be competitive. Are you able to invest in R&D given the profit margins you are able to achieve?

Mr. VORTMANN. No. I speak from the point of view of NASSCO. The answer is no. We can't afford to put any money into R&D. I think there is a specific need, but I don't think we are going to research or develop our way out of this problem.

We need volume. But the specific answer to your question, we are not in a position to invest any money in R&D at this time.

Mr. AUCOIN. Does that hold true for the future?

Mr. VORTMANN. In the long run, no question. The Japanese have been able to plow significant monies into R&D, ship design and production methodology.

Mr. AUCOIN. Those investments are not now being made?

Mr. VORTMANN. Correct.

Mr. HAGGETT. Before you leave that, could I respond?

Mr. AUCOIN. Yes.

Mr. HAGGETT. I think that Mr. Vortmann's answer reflects what is happening in roughly half of this industry.

There are, though, five shipyards that I would view as quite healthy. If you are talking about research and development, new technology, innovation, facility improvements and capital investments, those five shipyards are making them at a very rapid rate.

Bath Iron Works is one of those yards, as is Avondale and three others. Computer-aided design is moving ahead rapidly, as are systems investments in computer technology at Bath Iron Works. We are using highly automated manufacturing technologies, improving our methods, but no money is being spent on research to enhance merchant shipbuilding designs.

Mr. AUCOIN. Is that significant?

Mr. HAGGETT. I think it is a very significant omission. The Commission on Merchant Marine and Defense felt that we should focus much more attention through naval architectural firms, through the shipyards and other government agencies.

Mr. AUCOIN. What could DOD or MARAD do to contribute to greater investment in R&D?

Mr. STOCKER. We have proposed and the House has already acted on the MARAD authorization bill for fiscal year 1990 with a modest start-up program. Specific applications of funding for the two areas that Mr. Vortmann mentioned, new ship design and the production process improvement.

You have to understand that if in fact our long-term goal is to eventually move this industry into an internationally competitive position, we have to be prepared to offer the international shipowner a new product, an efficient product and a product that can meet his future needs for providing transportation services.

The Japanese are spending hundreds of millions of dollars to make that happen. We are not.

I am suggesting through the material we provided this Committee, that a partnership be created so that we can work out a strategy to develop new approaches for the future.

SEALIFT SHIPS

Mr. AuCoin. Mr. Stocker, let me ask you about sealift ships. If more of those ships were authorized and appropriated for fiscal year 1990, how many shipyards could possibly be the beneficiaries from the ship orders?

Mr. Stocker. Probably not very many. In the numbers that we have indicated here, perhaps two, perhaps three yards could in fact be supported by the two programs we have identified.

I will certainly be the first to admit to you that the proposal in our presentation is a band-aid, but it at least is a start toward trying to put those long-term programs into place that would provide the amortization of investment that we described earlier.

The Commission offered a more long-term approach, and we are going to have to develop a long-term solution. We are very sensitive to what Mr. Murtha has already raised, which is the overall budgetary problem, and that is why you see this particular approach, which is much more modest in tone.

Mr. AuCoin. The other problem we are dealing with is a Navy shortfall in sealift capability, and to keep the mobilization base alive is critical long term. That is why your suggestion interests me.

Could some of the shipyards that are in danger of closing today in the absence of initiatives of this kind be affected by a program like this?

Mr. Stocker. Absolutely.

Mr. AuCoin. Are there enough ships in the sealift program you proposed that would sustain them and allow them to make productivity improvements?

Mr. Stocker. Again let me emphasize that we believe this program is a start, and if one of the Government's functions is priming the pump, certainly this is a pump-priming exercise.

Let me suggest to you that it would at least, given the volume of work that Mr. Vortmann addressed earlier, provide the ability of yards to begin to make those long-term capital investments we need.

Mr. AuCoin. I will submit the last question for the record.

[Clerk's note.—Questions submitted by Mr. AuCoin and the answers thereto follow:]

FIXED PRICE CONTRACTS

QUESTION. I've expressed concern in this Committee and before the House Armed Services Committee and in the Navy requiring firm, fixed-price contracts for ship repair and shipbuilding work on relatively new and complex projects. The New Threat Upgrade (NTU) program comes readily to mind. What concerns do you have about the Navy requiring firm, fixed-price contracts for the lead ships of a class? And what should we do about it?

Mr. STOCKER. Navy policy is to rely on fixed-price contracts primarily. This type of contract is being used even in the development of new weapon systems where the risks are unknown both to the contractor and to the Navy. In shipbuilding, these contracts are used on the lead ship of a new class and on ship repair contracts where the Navy has not even identified the scope of the work in the specifications. The utilization of fixed-price contracts in a program's development stage misleads the Congress and the Administration as to the final cost of the program that will ultimately have to be paid by the government.

Last year, Congress placed restrictions on the use of fixed-price contracts with research and development programs by DoD when the scope of the work is not well defined. This same restriction should apply to the lead ship of a new class, and to a major overhaul when the scope of work is not known.

[CLERK'S NOTE.—End of questions submitted by Mr. AUCOIN.]

Mr. MURTHA. Mr. McDade.

Mr. MCDADE. I will yield to Mr. Young.

PRODUCTIVE FOREIGN SHIPYARDS

Mr. YOUNG. I think Mr. AuCoin has hit on a good subject here. Later this afternoon we are going to hear from Mr. William Creelman, the deputy administrator of the Maritime Administration for Inland Waterways and Great Lakes. But we have an advance copy of what he is going to say.

He says that frequently new ships can be foreign built for one-half to one-third of United States yard costs for the same ships and they can be built in half the time as well. The most productive foreign yards are also building major commercial ships using as little as 25 manhours per ton of steel erected while the United States yards require more than twice as many manhours.

Is that an accurate statement?

Mr. HAGGETT. I would say that based on history, relatively speaking, that is true and it should not be surprising. American shipyards have not been building merchant ships at any continuing sustained rate.

Therefore, we have not been able to optimize our facilities, planning, software, that sort of thing, around merchant ship construction.

With respect to Navy construction, we are world-class builders. No one can build the ships that are as high quality or high tech or at the same cost as American shipyards. The question is why. The answer is, in good part, because we have built more than they have built.

What our industry needs to reduce its cost to the most optimum position, and even then I think it is questionable whether we can get to some of the costs that are reflected in a foreign shipyard that builds a hundred ships of one type. Our foreign competitors have that opportunity to build on a sustained basis, American shipbuilders do not.

Mr. YOUNG. Are you saying that if in fact we were building this type of ship in the United States, that we could eventually meet these same manhours per ton of steel that the foreign yards are doing?

Mr. HAGGETT. Not if we are building ships at the rate of only three or even ten a year.

FOREIGN TECHNOLOGY TRANSFER

Mr. YOUNG. I understand you have to have production and I think most of my colleagues would agree. We would like to see some of that production being done in the United States by U.S. yards.

You responded to Mr. AuCoin about research and development and learning new processes. Why can't you just go to these foreign yards that are already accomplishing these cost savings and find out how they are doing it?

Mr. VORTMANN. The point you suggest, the American shipyards have attempted and are doing that, going to those foreign yards, particularly the Japanese yards, and working with them to bring home the technology that the Japanese took from the American shipyards after World War II.

There is nothing that they are doing now that wasn't initiated in this country. It is a question of volume. If you have volume on which to perfect techniques, to generate cash flow and train workers and get production technologies, you can move down the curve.

There is no reason why we can't do that again.

Mr. BOSSIER. I would like to respond. We at Avondale have done exactly that. We have had over the last six years a complete technology transfer from the people that you are speaking of, the Japanese.

The way we construct our ships today is almost 99 percent identical to the way the Japanese construct them. I agree with Mr. Haggett, as relating to Navy construction, they are not as efficient as we are.

If given the opportunity to produce the same numbers of ships they produce, we could build them at 25 manhours a ton. The technology we use is state of the art. There is no technology worldwide that exists that is any better or greater than what we use at Avondale, and some of our associates use also.

I read the same statement you did. The remark that it now costs 50 manhours a ton is inaccurate as related to our work. But given the same opportunity and the same number of vessels, we can match or better the cost, because they are not doing anything different from a methodology of construction than we do.

Mr. YOUNG. We are sympathetic because we sit here on a daily basis listening to DOD and military witnesses tell us about the lack of sealift and the dependence on foreign construction for merchant ships.

In the event of an all-out war, we would have such a large shortfall in sealift, I don't think we could get there.

COST OF WAGES AND REGULATIONS

Mr. **Bossier**. I spent some time analyzing the Korean shipbuilding business, who I think have the least expensive costs of anyone, and the reason is that their rate of pay is $2.50 an hour and their overhead is 100 percent, so their fully loaded cost is $5 an hour.

We have a minimum wage, $4.25 or $4.50, but as long as the Koreans can pay $2.50 an hour and our top pay is $11.75, and that is more or less representative for this industry, it is going to be impossible for us to compete with them, and roughly anywhere from 50 to 60 percent of the cost of a vessel is involved in the labor.

If the labor rate in Korea is 25 percent of what it is in the United States, 25 percent of 50 or 60 percent is a very large number. So when you take those things into consideration as far as the number of manhours, we can easily match their manhours given the same opportunities. We can never match the labor rate because the standard of living is completely different there.

Mr. **Young**. That is a very good point. Is there anything else like that that we haven't asked that maybe you would like to offer?

Mr. **Bossier**. That transmits through a whole system. We have supplies that John mentioned earlier, that are shrinking, that supplier base. Just as the shipyard worker earns $2.50 an hour, the fellow who builds the engines, fabricates the pipes, does the steel, he also earns a lesser wage rate.

So it is not only the direct labor that they can do cheaper for the basic reason I mentioned, but the material which is the other part of your 50 percent comes in at the same proportion, because the labor is the same in these other industries in addition to the shipbuilding. That is a form of subsidy.

Their standard of living is a subsidy that their country is offering as compared to where we are. It is a real thing. I have studied that personally.

Mr. **Haggett**. There is another perspective we could supply along the same vein. Several years ago we did a study on the impact of American regulatory requirements, specifically those from the Coast Guard. My recollection is that our study showed that because of American Coast Guard requirements as opposed to foreign regulatory bodies, the manhours associated with building an American merchant ship were 14 percent higher. Is that correct, John?

Mr. **Stocker**. Yes.

Mr. **Young**. Could you provide us with a copy of that report?

Mr. Chairman, would it be appropriate to have that included in the record for today?

Mr. **Murtha**. We will take it for the files.

[The report follows:]

STUDY OF COST OF FEDERAL GOVERNMENT REGULATIONS
ON SHIPBUILDING PRICES

Shipbuilders Council of America
October 1978

October 5, 1978

To: Edwin M. Hood, President
Shipbuilders Council of America

We have participated in the compilation and review of the coded copies of the questionnaire submitted to the Shipbuilders Council of America in answer to the "Questionnaire for Evaluation of the Cost Impact of Selected Laws and Regulations of the United States upon Costs of U.S. Shipyards" which encompassed increased internal shipbuilding costs due to U.S. laws and regulations concerning (a) technical features of ship construction; (b) employee's fringe benefits; (c) the Occupational Safety and Health Act; (d) the Environmental Protection Agency and (e) administration and reporting functions. These responses were received and recorded by the Shipbuilders Council and were not identified by shipyards for our compilation and review.

The "Summary of the Estimated Cost Impact of U.S. Laws and Regulations" which is attached as Exhibit A contains the condensed results of this study and the "Methodology Utilized in Compiling Responses" which is attached as Exhibit B explains the methods used in compiling the results shown at Exhibit A and the judgment therein exercised by the undersigned members of the Shipbuilders Council of America's Commercial Shipbuilding Committee.

Answers submitted by the participating shipyards were sufficiently compatible for purposes of averaging such answers and, in our opinion, the "Summary of Estimated Cost Impact of Selected U.S. Laws and Regulations" at Exhibit A should represent a reasonable order of magnitude of the cost impact of the selected U.S. laws and regulations upon the theoretical cost estimate of the 56,000 DWT product carrier. Because of the ingrained nature of these laws and regulations upon our business operations, and the resultant difficulty in identifying and quantifying their cost impact, we also believe that tnere is a greater probility that the cost impact at Exhibit A is understated rather than that it is overstated.

These results were largely dependent upon application of professional judgment and techniques by the participating shipyards rather than upon a detailed uniform methodology of extracting such costs and our confidence in the results submitted then is necessarily largely dependent upon the relative proximity of the responses submitted by these participating shipyards and upon the confidence which they in turn expressed.

We recommend that the Shipbuilders Council consider application of a detailed uniform methodology, comparable to the study that Arthur Andersen and Co. is now conducting on behalf of the Business Roundtable, to selected shipyards in the year 1979 in order to refine the answers to this most important question of the cost impact of Federal laws and regulations upon our business.

for Avondale Shipyards, Inc.

Richard W.
for Bath Iron Works Corporation

Robert A. Fiorelli
for Bethlehem Steel Corporation

for Newport News Shipbuilding &
Drydock Co.

E. L. Pickler, Jr.
for Norfolk Shipbuilding & Drydock
Corporation

SHIPBUILDERS COUNCIL OF AMERICA

STUDY OF COST OF FEDERAL GOVERNMENT REGULATIONS ON COMMERCIAL SHIPBUILDING PRICES

Preliminary Summary and Conclusions

Government regulations at the Federal, State and local levels proliferate at a virtually incalculable rate. They affect every business in the United States, large and small. They most adversely affect those industries competing with foreign products not similarly encumbered with a costly regulatory and enforcement structure. The U.S. shipbuilding industry is believed to be one such industry.

Of pertinent interest, the Commission on American Shipbuilding stated in its 1973 report to the Congress and The White House:

> "Analysis of the philosophy, practices, related laws and standards of the three leading shipbuilding nations in the world, and others who are ahead of the United States shipbuilding industry in tonnage on order, etc., indicate that they are not now adversely impacted or competitively disadvantaged in the world market place by legislation parallel to that which has affected the United States. Globally the United States has promulgated the most stringent and demanding policies for environmental considerations, and the related worker protection/welfare assistance programs that impair our ability to have a parity with our foreign counterparts."

To place the findings of the Commission in current perspective, the Shipbuilders Council of America, with the cooperation of five member companies, undertook a study to provide a current assessment of the cost of Federal Government regulations on shipbuilding prices.

These companies responded to a survey questionnaire based on "best professional judgments and state-of-the-art techniques" to estimate the probable increase in internal shipbuilding costs resulting from U.S. laws and regulations pertaining to (a) technical features of ship construction; (b) employee's fringe benefits; (c) workplace safety and health requirements; (d) environmental protection standards; and (e) administrative and reporting functions. A hypothetical 56,000 dwt tanker estimated to cost $45 million was used as a model.

From an analysis of survey returns, it has been concluded that U.S. Government regulations necessitate an average 14 percent (11-16 percent range) add-on to shipyard costs on a value added (labor plus overhead) basis. It is believed these figures are conservative and quite likely understated. For example, the 14 percent increase in value added cost does not include $651,000 in incremental cost for the hypothetical ship represented by additional material, required by U.S. laws and regulations, which is considered to be in excess of good shipbuilding practice.

Estimates submitted by the participating shipyards were sufficiently compatible for purposes of averaging and the "Summary of Estimated Cost Impact of Selected U.S. Laws and Regulations" in Exhibit A, in the judgment of the participants, reasonably represents an order of magnitude of the cost impact applicable to all U.S.-built ships.

These conclusions have an even more dramatic significance when taking into account the measurable fact that 45-55 percent of a vessel's price is comprised of the cost of steel and components purchased by the shipyards. These items are not covered by this study, but obviously, the regulatory impact on that portion of a ship's price, though not precisely established at this time, will raise the ship's cost considerably.

It is evident from this study that the ever-increasing costs of requirements, regulations and standards, imposed upon U.S. shipbuilders by Congressional-enacted statutes or administrative edict, contribute, in a substantial way, to the higher cost of ship construction in the United States as compared with the balance of the world. These relative costs are, of course, accentuated by the present-day practice of foreign shipbuilders in offering to build ships at prices below costs.

It needs to be pointed out that the conclusions herein stated need to be equated, in a comparative sense, with the cost of government regulations which may prevail in other shipbuilding nations of the world. No attempt has been made in this study to quantify any such differentials, but it is generally recognized that, in many categories, foreign requirements, regulations and standards, are less stringent and have a lesser cost impact than those of the United States.

Finally, it also needs to be mentioned that expansion of this study to Naval vessels, considering statutory and contractual requirments unique to these vessels, would produce an even more dramatic cost impact.

EXHIBIT A

SUMMARY OF THE ESTIMATED COST IMPACT OF SELECTED U.S. LAWS AND REGULATIONS

A)	Theoretical estimated cost of 56,000 DWT product carrier:	$45,000,000
B)	Estimated cost impact due selected U.S. laws and regulations (see item E):	
	1) Maximum total cost impact	$ 5,100,000
	As percentage of ship's total price (rounded)	11%
	2) Average cost impact	$ 4,039,000
	As percentage of ship's total price (rounded)	9%
	3) Minimum cost impact	$ 2,993,000
	As percentage of ship's total price (rounded)	7%
	Effect of the selected U.S. laws and regulations on material costs was included in this study only to the extent of evaluating increased quantities of material purchases required attributable to those laws and regulations:	
C)	Theoretical cost estimate of the 56,000 DWT product carrier, excluding material costs	$25,000,000
D)	Estimated cost impact, excluding material costs	$ 4,089,000
	1) Maximum total cost impact:	
	As percentage of ship's costs (rounded):	16%
	2) Average cost impact:	$ 3,388,000
	As percentage of ship's costs (rounded):	14%

EXHIBIT A
Page 2

3)	Minimum cost impact:	$ 2,670,000
	As percentage of ship's costs (rounded):	11%

E) Estimated increased costs on 56,000 DWT product carrier are due to:

		(Thousands of Dollars)		
		Maximum	Average	Minimum
1)	Technical Requirements of U.S. Coast Guard, American Bureau of Shipping, U.S. Public Health Service	$2,666	$2,134	$1,816
2)	Employees Fringe Benefits: Longshoremen's and Harbor Workers' Compensation Act, Employee Retirement Income Security Act, Federal Insurance Contribution Act and Federal Unemployment Insurance	$1,116	$ 995	$ 793
3)	Occupational Safety & Health Act	$ 994	$ 728	$ 309
4)	Environmental Protection Agency	$ 187	$ 93	$ 33
5)	Administration & Reporting	$ 52	$ 41	$ 11
6)	Insurance & Guarantee	$ 85	$ 48	$ 31
	Total estimated increased costs (see Item B)	$5,100	$4,039	$2,993
	Less estimated additional material costs	-1,011	- 651	- 323
	Total estimated increased costs excluding material costs (see Item D)	$4,089	$3,388	$2,670

NOTES TO EXHIBIT A:

1) Completed questionnaires and other details (coded to protect identity of participating shipyards) supporting this summary are in the files of the Shipbuilders Council of America.

EXHIBIT A
Page 3

2) All figures above are in 1978 dollars.

3) The scope of this study is limited to measuring the direct cost impact of major U.S. laws and regulations in the areas of:

   a) Increased quantities of materials due to increased design features attributable to those laws and regulations

   b) Increased direct labor costs

   c) Increased indirect labor and material costs

   d) Increased fringe benefit costs

   e) Increased depreciation and maintenance costs due to required capital improvements

   f) Increased insurance and guarantee costs

4) This study does not attempt to deal with the entire myriad of Federal laws and regulations, but only with those selected which are believed to produce the most dramatic cost impacts on the U.S. shipbuilding industry.

5) State and local laws and regulations vary and have therefore been excluded.

6) Suppliers of materials and components that go into the construction of ships are subjected to many of the same laws and regulations and the prices of their products would increase accordingly. Estimation of such additional costs to U.S. shipyards have not been considered by the scope of this study.

EXHIBIT B

STUDY METHODOLOGY

The methodology utilized in compiling responses to the questionnaire for evaluation of the cost impact of selected laws and regulations of the United States upon costs of U.S. ship construction are discussed below.

General

Five shipyards completed the questionnaires. The answers submitted were coded to protect shipyard identities, summarized and carefully evaluated for levels of confidence. An answer submitted by an individual shipyard was discounted only when such response was excessively disparate to other answers.

Technical Requirements

This Evaluation involved the most subjective judgments of question included in the questionnaire. Of the five answers submitted, two were judgementally disallowed because of their disparate relationship to each other and to the three which remained for inclusion in Exhibit A. The three answers contained in Exhibit A were relatively compatible in their order of magnitude.

Employee's Fringe Benefits

The totals submitted by each of the five shipyards were quite proximate. Minor variations included in evaluations of individual laws were inconsequential in the total scope of the study. All five yards expressed a good level of confidence in their answers and all five are included in Exhibit A.

Occupational Safety and Health Act

Of the five answers submitted, one was judgementally disallowed because of its disparate relationship to the others. The remaining four answers are included in Exhibit A, although one of these shipyards expressed only a fair degree of confidence in the answer submitted and verbally advised the Council that its estimate might be only 50 percent of the actual cost increase attributable to OSHA.

Environmental Protection Agency, Administration and Reporting and Insurance and Guarantee

All of these evaluations were relatively minor in the total scope of the study and all were utilized in Exhibit A.

SHIPBUILDERS COUNCIL'S QUESTIONNAIRE ON COST OF FEDERAL REGULATIONS

SUMMARY SHEET - EVALUATION 1 - COST DECREASES - TECHNICAL REQUIREMENTS FINAL 10/78

($000 Omitted)

	1	2	3	4	5	11	12
	SHIPYARD 1	SHIPYARD 2	SHIPYARD 3	SHIPYARD 4	SHIPYARD 5	TOTAL	AVERAGE
DIRECT MATERIAL	321	896.1	50	600	147	1817	606
DIRECT ENGINEERING LABOR	176	156.2	0	50	125	387.2	127
DIRECT PRODUCTION LABOR	1105	1055.1	20	945	24'	3105.1	1035
OVERHEAD COST:							
INDIRECT MATERIAL		.5			6	.5	
INDIRECT LABOR		186.5			6	186.5	186
WORKERS' FRINGE BENEFITS	319	371.8	5	220.9	7	911.7	303
TOTAL	1921	2666.2	75	1815.9	315	6403	2134
ATTRIBUTABLE TO:			(1)		(1)		
ABS							
USOG							
USPHS							
TOTAL							
CONFIDENCE LEVEL:							
HIGH							

(1) Thrown out by judgement

SHIPBUILDERS COUNCIL'S QUESTIONNAIRE ON COST OF FEDERAL REGULATIONS

SUMMARY SHEET - EVALUATION 3 - OSHA

($000 Omitted)

	1	2	3	4	5	11	12
	SHIPYARD 1	SHIPYARD 2	SHIPYARD 3	SHIPYARD 4	SHIPYARD 5	TOTAL	AVERAGE
DIRECT MATERIAL	14	2.1		50	115	181.1	45.3
DIRECT ENGINEERING							
DIRECT PRODUCTION LABOR	702	119.7	709	477.5	203	2211.2	442.3
OVERHEAD COST:							
INDIRECT MATERIAL	6	40.6	11	12.5	46	116.1	23.2
INDIRECT LABOR	24	42.5	44	119.4	30	229.9	57.5
WORKERS FRINGE BENEFITS	184	43.1	131	132.5	67	557.6	111.5
DEPRECIATION	10	20.0	88	25.8		143.8	36.0
MAINTENANCE & UPKEEP	48	40.0	11	54.9	10	163.9	32.8
OTHER OVERHEAD COST		.9		7.6		8.5	4.3
TOTAL	988	308.9	994	880.2	471	3642	728.4
CAPITAL IMPROVEMENTS REQUIRED	926.1	400*	1000	1585.0			

* Verbally advised Shipbuilders Council that answer

SUMMARY SHEET - EVALUATION 2 - WORKERS FRINGE BENEFITS

($000 Omitted)

	1	2	3	4	5	11	12
	SHIPYARD 1	SHIPYARD 2	SHIPYARD 3	SHIPYARD 4	SHIPYARD 5	TOTAL	AVERAGE
WORKERS FRINGE BENEFITS							
CONSISTING OF:							
WORKMEN'S COMPENSATION DUE TO LONGSHOREMEN'S & HARBOR WORKERS' ACT	1752	329	153	876		4487	1122
ERISA	499	1752	44			2691	897
FICA	8727	6680	865	8110		32167	8042
FUI	186	438	77	1095		2489	622
TOTAL	11165	9198	1139	10081	793	49764	9953
CONFIDENCE LEVEL:							
HIGH							
GOOD	✓	✓	✓	✓			
FAIR							
LOW							
MINIMUM/MAXIMUM RANGES:							
WORKMEN'S COMPENSATION							

($000 Omitted)

	1 SHIPYARD 1	2 SHIPYARD 2	3 SHIPYARD 3	4 SHIPYARD 4	5 SHIPYARD 5	11 TOTAL	12 AVERAGE
DIRECT MATERIAL					8	8	8
DIRECT ENGINEERING							
DIRECT PRODUCTION LABOR		4.1		16		20.1	10.1
OVERHEAD COST:							
INDIRECT MATERIAL	19	19.7		2.5	20	61.2	15.3
INDIRECT LABOR	13	17.5		4.0	5	39.5	9.9
WORKERS FRINGE BENEFITS	4	5.7		4.4	2	16.1	4.0
DEPRECIATION	21	22.5	33	48.0	12	136.5	27.3
MAINTENANCE & UPKEEP	5	25.0		96.0	40	166.0	41.5
OTHER OVERHEAD COST		.1		16.0		16.1	8.1
TOTAL	62	94.5	33	186.9	87	463.4	92.7
CAPITAL IMPROVEMENTS REQUIRED	1729.4	500	314	2908.4			

CONFIDENCE LEVEL:

SUMMARY SHEET - EVALUATION 5 - ADMINISTRATION & REPORTING

($000 Omitted)

	1	2	3	4	5	11	12
	SHIPYARD 1	SHIPYARD 2	SHIPYARD 3	SHIPYARD 4	SHIPYARD 5	TOTAL	AVERAGE
NDIRECT MATERIAL	75	.6	11			191	63
NDIRECT LABOR	273	86	44	21.9	37	1388	278
ORKERS FRINGE BENEFITS	69	23	11	49	11	361	72
EPRECIATION							
THER OVERHEAD COST	100					100	100
OTAL	517	114	66	268	48	2049	41
ONFIDENCE LEVEL:							
HIGH							
GOOD	✓		✓	✓			
FAIR							
LOW		✓					
INIMUM/MAXIMUM RANGES:							
INDIRECT MATERIAL							
INDIRECT LABOR							
OTHER OVERHEAD COSTS							

SUMMARY SHEET - EVALUATION 4 - INSURANCE & GUARANTEE ITEMS

	SHIPYARD 1	SHIPYARD 2	SHIPYARD 3	SHIPYARD 4	SHIPYARD 5	TOTAL	AVERAGE
INSURANCE	47	30.6	17	49	39	167.8	33.6
GUARANTEE	38	8.5	14		16	76.5	15.3
TOTAL	85	39.1	31	49	55	244.3	48.9

	Maximum	Average	Minimum
Material - Evaluation 1	896	606	321
Material - Evaluation 3	115	45	2
Total	1011	651	323

Mr. HAGGETT. I am not saying that American Coast Guard standards are bad; but the costs of compliance are higher.

Mr. STOCKER. A couple of additional thoughts, because I have just had the opportunity to return from Korea. The situation has changed dramatically as the labor management difficulties have continued over the past few months.

Labor rates in Korea have doubled in the time period since Mr. Bossier did his study. It is now $5 an hour. That doesn't necessarily mean when we look at cost differentials that we should ignore the impact of the kinds of things the Korean or Japanese governments do on behalf of their yards. That is direct production subsidies or preferential financing.

I have copies of a document that was prepared by the Norwegian Government. The title is "Competitive Financing from Norway," and one of the programs in here talks about subsidized financing at interest rates that are far below those that you can find in any market, private financial market in the United States or any other place in the world. That is what we are competing against.

Mr. YOUNG. Let us have a copy of that for our files, too.

[The information follows:]

Competitive financing from Norway

of equipment for shipping and offshore projects.

Norway
- A Maritime Nation

[illegible]

No. 10 October 1987

COMPETITIVE FINANCING OF SHIP, FISHING VESSELS AND EQUIPMENT FROM NORWAY.

Eksportfinans offers favourable financing of ship, fishing vessels and ship and fishing equipment to foreign buyers. There are separate schemes for ship financing and equipment (capital goods) financing. Eksportfinans may provide the following financial solution:

SUMMARY

Ship Financing

I a. Cash contract scheme
- cash subsidies independent of the Buyer's long term financing.

I b. Commercial
- long term financing of the Buyer's newbuilding or conversion contract.

II. Subsidized financing as an alternative to Ia and b (OECD ships understanding).

Financing of Ship and Fishing Equipment

2. alternatives:

I. OECD Consensus financing - subsidized financing

II. Commercial financing.

SPECIFICATIONS

Ship Financing

I a. Cash Contract Scheme

The cash contract scheme is managed by Eksportfinans. Cash subsidies are disbursed to the Buyer (or his order) in NOK. The scheme is available for newbuildings above 100 GRT and conversions above 1000 GRT.

I b. Commercial Financing

Eksportfinans may support cash contracts with favourable long term financing:

Loan amount: 80-100 per cent of contract value.

Currency: USD or other major convertible currencies.

Interest: Favourable sub. LIBOR interest rate.

Repayment: Normally 5-7 years. Longer periods may also be available.

Sucurity: Guarantee from Norwegian or prime international bank acceptable to Eksportfinans for the account of the Borrower.

II. Subsidised financing

As an alternative to cash contract subsidies and commercial financing, subsidised financing may be provided:

Loan amount: Up to 80 per cent of net contract value.

Currency: USD.
NOK may also be available.

Interest: USD: 8 per cent p.a.
NOK: Market rate minus 6 per cent p.a., minimum net rate 8 per cent p.a.

Repayment: 8,5 year in semi-annual instalments.

Security: Guarantee from the Norwegian Guarantee Institute for Export Credit (GIEK), Norwegian or prime international bank acceptable to Eksportfinans for the account of the Borrower.

Financing of Ship/Fishing Equipment

I. Eksportfinans provides subsidized consensus financing from Norway. The financing is conditional upon credit competition from other countries.

Amount: Up to 85 per cent of the contract amount.

Currency: USD (NOK or other high interest currencies may also be available depending on the competitors offer).

Interest: P.t. 9.55 per cent p.a for industrialized countries. For other countries the interest will be 7.4 per cent p.a. to 8.25 per cent p.a. depending on the location of the buyer. The interest is valid for commitments made until January 15 th. 1988.

Loan period: 5-7 years from drawdown depending on location of buyer and amount to be financed.

Repayment: In equal semi-annually instalments.

Security: As for subsidised ship financing.

II Commercial Financing

The same terms and conditions as for commercial ship financing will apply.

For further information please contact:

Mr. Erik Bølling, Ship financing
Ms. Anette Berg, Ship financing
Mrs. Hilde Kjeldsberg, Ships Equipment financing
Mr. Petter Jacobsen, Ships Equipment financing.

Bulletin

No. 10 October 1987

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Interest: Favourable sub. LIBOR interest rate.

Mr. YOUNG. Thank you for your response.

Mr. MURTHA. We will go to Mr. Livingston and then we will hear from the Government witnesses.

GOVERNMENT RESPONSIBILITY FOR SEALIFT

Mr. LIVINGSTON. Thank you, Mr. Chairman.

I just, first of all, want to commend the entire panel for an outstanding presentation on a very complex problem.

I also want to commend Mrs. Bentley for being such a dynamic leader in the maritime field. She is not only one of my favorite people in Congress, but also one of the most aggressive supporters of a strong maritime and strong maritime policy. When she speaks, of course, we all have to perk up and listen. I just hope ultimately she will prevail, because constituents of all of us depend on it.

The biggest problem though, as I see it, is the fact we constantly seem to be confronting a conflict between the very real need for an expanded mobilization base and the budgetary environment which we face. Such a conflict may compel us not to expect the Navy to replace the diminished or limited commercial market. We haven't built a commercial ship, as you all pointed out, and Mrs. Bentley has pointed out, in three years and maybe more. That is pretty sad.

I would just all of ask you if you would agree or if you would like to comment on Secretary Carlucci's comment when he wrote last year about this very severe problem. He pointed out that we have a lack of adequate military sealift, but he said the problem is beyond the ability of DOD to resolve and clearly requires the cooperation of all appropriate government agencies.

We have been trying to face this problem for years, to get an adequate maritime policy so that we can keep the mobilization base organized and meet our defense needs, yet we can't seem to get the shipbuilding industry, the shipping industry, labor and everybody all together on one unified package or solution.

I would be delighted if you all would give us any suggestion on how we could do that, and do so within the economic restrictions that we have.

Mr. STOCKER. Of course, Mr. Livingston, I have made it very clear in the time period since I have been President of the Council, that we are interested in discussing that very question of trying to bring the disparate elements of the maritime community together to offer some thoughts about the future.

It is not, I think, within the jurisdiction of our side of the table here to suggest how DOD establishes its priorities. We certainly agree with you that this is a national problem that requires a national solution. Frankly, we see the problem as perhaps a lack of attention from the more senior elements of the government and I hate to continue to beat up on places like OMB, but perhaps that is part of the problem.

I also certainly would not reject the idea that we need to look at the whole range of activities and strategies that are available to us beyond money, because, as I said earlier, we are very sensitive to the question of money. That is part of the reason why we will end up filing this trade complaint, because that is an important aspect of what it is we are going to proposed to both the executive branch and the Congress.

We need the trade complaint as a way to serve as a catalyst for those agencies of the government that have not focused their attention on the shipbuilding problem or who attribute it to some level of perceived incompetence of American shipbuilders, such as some of the agencies that will be testifying before you today.

That is the reason why we are talking now to the Council of Economic Advisors. We are talking to elements of the Commerce Department, the Labor Department, and so on, because this is going to require, in the development of the strategy, a total effort from government. By the way, labor is with us on this issue.

I would like to point out that Mr. Dennis Toney of the Iron Workers is with us today. I have talked to the Metal Trades Council about this particular issue, and I don't see labor as being a problem at all in terms of working with us on this particular issue. They have said to me, why did it take you so long to get here? We have got to develop a strategy and that is why in coming to this committee today, what we focus on are programs that were within the jurisdiction of this committee coming out of the defense budget, but we don't see that as the end-all and be-all of the solutions that have to be developed for this industry.

Mr. **Murtha**. Thank you very much, gentlemen.

We appreciate all of you coming before the committee. We understand there is a substantial shortfall of sealift and we hope we can do something about it. We will try to do everything we can, if it is authorized, to find the money to help out in what we consider a critical situation.

Thank you.

Mr. **Miller**. Mr. Chairman.

Mr. **Murtha**. Mr. Miller.

Mr. **Miller**. I just have one question.

Mr. **Murtha**. Sure.

SHIP CONSTRUCTION RANKINGS

Mr. **Miller**. We are talking about the commercial shipbuilding market, and we have only one percent of the market at the present time in this country.

Mr. **Klinges**. Zero percent, sir. What we are recommending is to try to get one percent of the market.

Mr. **Miller**. Since you have talked about it, and you have worked with other nations apparently, traveled there and discussed the problem, what countries are building the top number of ships? Could you list the countries as to the top ten countries and how many ships they are building?

Mr. **Haggett**. Japanese.

Mr. **Miller**. Yes. Korea, and West Germany?

Mr. **Haggett**. Japanese yards are building around 25 percent of the ships. South Korea is building about 25 percent of the ships. Those two nations dominate the market. Taiwan is a large market, Mainland China is building more merchant ships every year, Yugoslavia is also a player.

Mr. STOCKER. We can leave with you this report we have just completed that shows where the major shipbuilding is taking place worldwide.

Mr. MILLER. It would be good if we could have that information for the record.

Thank you.

[The information follows:]

LEADING COUNTRIES IN MERCHANT SHIP CONSTRUCTION

SOURCE: OFFICE OF TRADE ANALYSIS AND INSURANCE
MARITIME ADMINISTRATION

	1977			1988		
COUNTRY	DEADWEIGHT (000)	PERCENT	RANK	DEADWEIGHT (000)	PERCENT	RANK
TOTAL	100,040.0			34,976.1		
JAPAN	32,841.2	32.8%	1	9,175.8	26.2%	2
SWEDEN	7,396.7	7.4%	2	5.0	0.0%	33
SPAIN	6,747.1	6.7%	3	565.9	1.6%	13
UNITED STATES	6,119.3	6.1%	4	91.2	0.3%	24
BRAZIL	5,642.4	5.6%	5	1,389.2	4.0%	5
UNITED KINGDOM	5,367.9	5.4%	6	153.3	0.4%	19
FRANCE	4,024.2	4.0%	7	136.0	0.4%	20
POLAND	3,478.0	3.5%	8	1,021.2	2.9%	8
GERMANY(FED REP)	3,140.4	3.1%	9	712.6	2.0%	11
BULGARIA	2,534.8	2.5%	10	313.0	0.9%	15
ITALY	2,497.7	2.5%	11	1,278.2	3.7%	6
DENMARK	2,171.7	2.2%	12	865.4	2.5%	9
U.S.S.R.	2,133.3	2.1%	13	108.2	0.3%	22
ROMANIA	2,117.3	2.1%	14	851.3	2.4%	10
KOREA (REP OF)	1,664.9	1.7%	15	11,413.4	32.6%	1
FINLAND	1,459.1	1.5%	16	83.1	0.2%	26
YUGOSLAVIA	1,334.4	1.3%	17	1,648.9	4.7%	4
TAIWAN	1,253.4	1.3%	18	1,779.9	5.1%	3
NORWAY	1,205.5	1.2%	19	78.3	0.2%	27
INDIA	1,177.6	1.2%	20	703.1	2.0%	12
CANADA	805.4	0.8%	21	0.0	0.0%	
BELGIUM	691.4	0.7%	22	117.7	0.3%	21
PORTUGAL	680.0	0.7%	23	88.3	0.3%	25
GERMAN DEM. REP.	579.1	0.6%	24	221.7	0.6%	17
NETHERLANDS	547.4	0.5%	25	92.6	0.3%	23
ARGENTINA	511.3	0.5%	26	248.5	0.7%	16
PERU	495.2	0.5%	27	0.0	0.0%	
GREECE	432.4	0.4%	28	55.9	0.2%	29
SINGAPORE	259.6	0.3%	29	0.0	0.0%	
TURKEY	217.5	0.2%	30	318.7	0.9%	14
AUSTRALIA	150.1	0.2%	31	0.0	0.0%	
CHINA	95.0	0.1%	32	1,189.4	3.4%	7
ALL OTHERS	268.7	0.3%		270.3		

Mr. **Murtha**. Thank you very much gentleman. The Committee is adjourned.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

RECOMMENDATIONS BY THE COMMISSIONER ON MERCHANT MARINE AND DEFENSE

Question. The Maritime Industry, if it is to be viewed as a true industry, has two segments. The buildings and the users. But these two segments do not have a natural tendency toward cooperation. This fact was recognized by the Commission on Merchant Marine Defense in its third report. That report stated:

> Tendencies for the various segments of the (Maritime) industries to contend with one another rather than cooperate together are increasingly, evident, deeply disturbing, and clearly an obstacle to effective actions.

Approximately five months after the Commission put forth a recommendation to allow ship operators to buy efficient ships from foreign builders and still be eligible for operating subsidies, the Shipbuildings Council of America initiated legislation, introduced by Congressman Robert W. Davis, to limit this recommendation. This action was taken in spite of the Commission's feeling with implementation of all of its recommendations was required for the industry to survive.

Mr. Stocker, how does the Shipbuilders Council justify its support for the Davis legislation in light of the Commission's feeling that the recommendation was necessary for the industry as a whole to survive?

Mr. **Stocker**. Congressman Robert W. Davis, as the ranking Republican of the House Merchant Marine and Fisheries Committee, is very much aware of the decline of the U.S. Merchant Marine and of U.S. shipyards and marine suppliers. The legislation to which you refer, H.R. 1518, was introduced by Mr. Davis in the 100th Congress and again in March of this year. The Shipbuilders Council has never requested Mr. Davis to introduce that piece of legislation, and it has never endorsed the bill. It is my understanding that Mr. Davis has promoted H.R. 1518 because all other Operating-differential Subsidy proposals introduced in the last Congress failed to address the plight of the U.S. shipyard mobilization based. Furthermore, the Shipbuilders Council is the only major maritime trade association, to date, that has endorsed the recommendations of the Commission on Merchant Marine and Defense, which it did on March 31, 1989.

[Clerk's note.—End of questions submitted for the record.]

THURSDAY, MAY 11, 1989.

SHIPBUILDING INDUSTRIAL BASE

WITNESSES

RICHARD E. DONNELLY, ASSISTANT DEPUTY UNDER SECRETARY OF DEFENSE, MANUFACTURING AND INDUSTRIAL PROGRAMS

ROBERT MOORE, DIRECTOR OF TRANSPORTATION POLICY

WILLIAM A. CREELMAN, DEPUTY ADMINISTRATOR, INLAND WATERWAYS AND GREAT LAKES, FEDERAL MARITIME ADMINISTRATION

H.T. HALLER, ASSOCIATE ADMINISTRATOR FOR SHIPBUILDING AND SHIP OPERATIONS

EVERETT PYATT, ASSISTANT SECRETARY OF THE NAVY, SHIPBUILDING AND LOGISTICS

INTRODUCTION

Mr. MURTHA. The Committee will now hear from witnesses from the Office of the Secretary of Defense, the Department of the Navy, and the Maritime Administration.

Mr. Donnelly.

SUMMARY STATEMENT OF MR. DONNELLY

Mr. DONNELLY. Thank you, Mr. Chairman.

I would like to introduce Mr. Robert L. Moore, who is Director of Transportation Policy, within the Office of the Assistant Secretary of Defense for Production and Logistics.

I have a statement for the record that I would like to summarize, with your permission.

Mr. Chairman, I would like to state up front to the Committee that the Department does recognize the serious problems facing American industrial and manufacturing industries, including U.S. shipyards and shipyard suppliers.

INDUSTRIAL DEFENSE COMPETITIVENESS

Some 18 months ago, we undertook a comprehensive study to determine the specific causes and issues that were in effect undermining the U.S. industrial base. Under the leadership of Dr. Costello, Under Secretary for Acquisition, we published a report entitled "Bolstering Industrial Defense Competitiveness." If you haven't had the opportunity to review it, I would certainly encourage you to do so, and even suggest boldly that you consider putting the executive summary of that fine report in your record. Over a year's effort went into this project.

The difference between this particular review and a lot of other ones that litter my bookshelves, and maybe yours, is this study uncovered some of the root causes of our declining industrial competitiveness in the United States rather than just the symptoms.

We have crafted a plan to hopefully deal with this. Some of the solutions lie within the purview of the Defense Department, but many of them are clearly outside of what DOD can resolve. One of the things that the report found was that we need to develop industrial base plans that support our military operational plans. The link between the operational plans of the unified and specified commands and U.S. industry is not as tight as it could be or should be. That certainly is one of the major undertakings that we will be working on this year—to forge a tighter link between those two worlds.

The recommendations in the report center around six major thrusts:

Forging the right relation with industry.

Further improving our acquisition system.

Again, establishing industrial base plans that support our military strategic plans, trying to lay the foundation now for the technical skill base that we are going to need over the next decade.

Technical skills meaning shipyard workers obviously, but also engineers, scientists, and various other types of technicians. There is a growing educational problem in the United States that goes right down into high schools and grade schools that we have identified.

DEFENSE MANUFACTURING BOARD

The last one was to insure industrial base issues important to our defense benefit from the full perspective of potential policy remedies. In addition to making some organizational changes within the Office of the Secretary of Defense, we recently established a Defense Manufacturing Board. This board is similar to the Defense Science Board, which has been around for probably two decades now. It is keyed to manufacturing and industrial infrastructure problems faced by basic industry, vendors and suppliers that support the United States shipbuilding industry.

The Board is chaired by Mr. Tom Murrin, former President of Energy and Advance Technology at Westinghouse. Mr. Murrin has been nominated to become the Deputy Secretary of Commerce as well. The Defense Manufacturing Board has four committees: technology, quality, industrial base, and human resources, and each committee has developed an agenda of about three projects to study. These are not projects that support shipbuilding per se, but clearly the kinds of things the Board is beginning to look at will begin to give leadership to redress some of the difficulties faced by manufacturing industries across the board, including the shipyards and their supporting subsectors.

I might also add that former Senator Jeremiah Denton, who chaired the Commission on Merchant Marine and Defense, presented the results of the Commission's deliberations to the Defense Manufacturing Board at its last meeting held in March of this year. So I don't think we have been quiescent with this problem with respect to shipbuilding.

NATIONAL SEALIFT POLICY

I point out that Secretary Weinberger addressed this issue—the need for a National Sealift Policy—and he recognized the problems of this industry were well beyond the purview of the Defense Department and would require a coordinated effort, beginning at the highest levels of government. Former Secretary Weinberger's initiative was further supported by former Secretary Carlucci who in December of 1988 noted that the United States and allied merchant fleets continue to decline and, in so doing, increase the existing risk of the national security.

Last week or the week before, Secretary Cheney reaffirmed DOD's position that a National Sealift Policy statement would be a first step in redressing the deterioration of maritime capabilities of the United States.

MANUFACTURING TECHNOLOGY PROGRAM

We also support the maritime industry through some programs within the Defense Department. For example, there is a program I believe you are familiar with, Mr. Murtha, the Mantech Program, or Manufacturing Technology program. This is an effort that takes manufacturing techniques that have been proven in the laboratory and attempts to scale them up so they can be applied on the factory floor or scaled up by private industry and installed.

It is disappointing sometimes to see the good work that is done in developing manufacturing techniques be applied overseas before it is applied in the United States. We have a Mantech product called the National Shipbuilding Research program, which is a government-industry cooperative effort aimed at reducing ship production costs and accelerating ship and submarine deliveries through improved shipbuilding and ship repair methods and facilities.

There are a number of naval shipyards and private shipbuilding firms involved in this program. Its funding is on the order of $1.2 million. I believe we are talking about one and a half million dollars in fiscal year 1990. In short, Mr. Chairman, the Defense Department is acutely aware of the problems facing the maritime industry, and we concur in principle with the findings of the Commission on Merchant Marine and Defense, on its declining state.

But I must add, and I have heard it come out in the deliberations already, that the problems facing the United States maritime industry mirror the problems of many other industries that are also critical to the United States. There are common threads throughout these industries that affect their well being that are clearly beyond the scope of the DOD.

DOD has asked the National Security Council to provide oversight and coordination of the sealift policy throughout the Executive Branch. I think that that effort is being paced by the current National Security Review of strategic and conventional force structure.

That summarizes my prepared statement, Mr. Chairman. I would be pleased to respond to any questions you may have.

[The biographical sketch and statement of Mr. Donnelly follow:]

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

RICHARD E. DONNELLY

Richard E. Donnelly was appointed Assistant Deputy Under Secretary of Defense for Manufacturing and Industrial Programs in December 1988. He is responsible for providing policy and planning direction within the Department of Defense to ensure the readiness of a cost-effective industrial production base to meet peacetime and emergency requirements.

Mr. Donnelly was born in Cleveland, Ohio on August 5, 1939. He attended public schools in Ohio and accomplished undergraduate work in Business Administration at Kent State University. He is presently working toward a Masters in Public Administration in Washington, DC. His government training includes the Industrial College of the Armed Forces, Federal Executive Institute and a recent assignment as a Senior Fellow at the Institute for National Strategic Studies of the National Defense University.

Mr. Donnelly has been a professional staff member of the Office of the Secretary of Defense since 1972, serving in a number of key policy positions such as Director for Industrial Resources, Staff Director for Materials Policy and Staff Specialist for Priorities and Allocations Systems. From 1968-1972, Mr. Donnelly served on the Headquarters, USAF staff developing policies for management of Air Force industrial resources. From 1965-1968 Mr. Donnelly was an industrial planner at the Defense Contract Administration Services Regional office in Cleveland.

He is active in several industrial associations and technical societies and is a frequent lecturer at the National Defense University and Defense Systems Management College. Mr. Donnelly is a career member of the Senior Executive Service and has received both the Meritorious and Distinguished Presidential Rank Awards from President Reagan.

Mr. Donnelly is married to the former Kathleen Jirovec of Cleveland. They have a son, Scott and a daughter, Erin and currently reside in Oakton, Virginia

HOLD UNTIL RELEASED
BY THE COMMITTEE

STATEMENT OF
MR. RICHARD E. DONNELLY
ASSISTANT DEPUTY UNDER SECRETARY OF DEFENSE
MANUFACTURING AND INDUSTRIAL PROGRAMS

BEFORE THE
HOUSE
SUBCOMMITTEE ON DEFENSE APPROPRIATIONS

THURSDAY
MAY 11, 1989

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE, I APPRECIATE THIS OPPORTUNITY TO APPEAR BEFORE YOU TODAY TO DISCUSS THE DEFENSE INDUSTRIAL BASE IN GENERAL AND MORE SPECIFIC, THE US MARITIME INDUSTRIES.

MR. CHAIRMAN I WOULD LIKE TO STATE TO THE SUBCOMMITTEE UP-FRONT THAT THE DEPARTMENT DOES RECOGNIZE THE SERIOUS PROBLEMS FACING AMERICAN INDUSTRIAL AND MANUFACTURING INDUSTRIES, INCLUDING US SHIPYARDS AND SHIPYARD SUPPLIERS.

SOME EIGHTEEN MONTHS AGO WE UNDERTOOK A COMPREHENSIVE STUDY TO DETERMINE THE SPECIFIC CAUSES AND ISSUES THAT WERE IN EFFECT UNDERMINING THE US INDUSTRIAL BASE IN GENERAL AND MORE SPECIFIC THE DEFENSE INDUSTRIAL BASE. OUR EFFORT INVOLVED EXPERTS FROM WITHIN DOD AND FROM THROUGHOUT THE NATION, FROM NOBEL LAUREATES AND CEO'S TO PRODUCTION LINE MANAGERS, ACADEMICIANS, INVESTMENT BANKERS, AND OTHERS. AFTER OVER A YEAR DEDICATED TO THIS PROJECT, DOD ISSUED ITS REPORT, BOLSTERING DEFENSE INDUSTRIAL COMPETITIVENESS.

OUR FINDINGS INDICATED THAT IT IS VITAL THAT WE DEVELOP INDUSTRIAL PLANS THAT BETTER SUPPORT STRATEGIC PLANS. TO DO THIS, WE NEED TO BETTER DEFINE WHAT THE DEPARTMENT NEEDS FROM THE INDUSTRIAL BASE AND WHEN. WE ASKED THE JOINT CHIEFS OF STAFF TO TAKE THE LEAD IN THIS ONGOING PROCESS. THIS ULTIMATELY WILL

RESULT IN A TIGHTER LINK BETWEEN THE VARIOUS WARTIME OPERATIONAL PLANS OF THE UNIFIED AND SPECIFIED COMMANDS AND OUR INDUSTRIAL BASE RESPONSIVENESS.

THE RECOMMENDATIONS OUTLINED IN OUR REPORT CENTER ON SIX MAJOR THRUSTS:

- FORGING THE RIGHT RELATIONS WITH INDUSTRY;
- IMPROVING THE ACQUISITION SYSTEM;
- ESTABLISHING DEFENSE INDUSTRIAL STRATEGIC PLANS THAT SUPPORT OUR MILITARY STRATEGIC PLANS;
- DEVELOPING MANUFACTURING CAPABILITIES CONCURRENT WITH DEVELOPMENT OF WEAPON SYSTEMS;
- LAYING THE FOUNDATION NOW FOR THE TECHNICAL SKILL BASE REQUIRED FOR TOMORROWS DEFENSE NEEDS; AND
- ENSURING THAT INDUSTRIAL BASE ISSUES IMPORTANT TO OUR DEFENSE BENEFITS FROM THE FULL SPECTRUM OF POTENTIAL POLICY REMEDIES, WHEN APPROPRIATE.

WITHIN THE OFFICE OF THE SECRETARY OF DEFENSE THERE HAVE BEEN ORGANIZATIONAL CHANGES EFFECTED TO PROVIDE THE NECESSARY FOCUS AND EXPERTISE TO ADDRESS THE FINDINGS AND RECOMMENDATIONS OF OUR REPORT. SPECIFICALLY, WE HAVE ESTABLISHED A PRODUCTION BASE ADVOCATE, THE DEPUTY UNDER SECRETARY OF DEFENSE FOR INDUSTRIAL AND INTERNATIONAL PROGRAMS. THIS POSITION PROVIDES A SINGLE

POINT-OF-CONTACT WITHIN OSD FOR DEFENSE INDUSTRIAL BASE MATTERS.

IN ADDITION TO THE ORGANIZATIONAL CHANGES, THE DEPARTMENT HAS ESTABLISHED THE DEFENSE MANUFACTURING BOARD (DMB), WHICH IS MODELED AFTER THE DEFENSE SCIENCE BOARD. FORMER SECRETARY CARLUCCI APPOINTED MR. THOMAS J. MURRIN, FORMER PRESIDENT OF ENERGY AND ADVANCED TECHNOLOGY, WESTINGHOUSE, TO SERVE AS ITS FIRST CHAIRMAN. MR. MURRIN AND THE OTHER DISTINGUISHED MEMBERS OF THE DMB HAVE IN EFFECT, HIT-THE-GROUND-RUNNING IN GOING ABOUT THE BUSINESS OF IMPROVING US INDUSTRIAL COMPETITIVENESS. LET ME BRIEFLY DESCRIBE THE BOARD'S FOCUS. THE DMB HAS ORGANIZED AROUND FOUR COMMITTEES: TECHNOLOGY, QUALITY, INDUSTRIAL BASE, AND HUMAN RESOURCES. EACH COMMITTEE HAS DEVELOPED AN AGENDA OF ABOUT THREE PROJECTS. THE DEPARTMENT HAS ALREADY FORMALLY ENDORSED ITS FIRST PROJECT ON CONCURRENT ENGINEERING. A TASK FORCE TO IDENTIFY BARRIERS TO THE WIDE SPREAD USE OF CONCURRENT ENGINEERING AND PROVIDE RECOMMENATIONS ON WAYS TO ELIMINATE THESE BARRIERS, IS BEING FORMED WITH INTERIM RESULTS EXPECTED WITHIN SIX MONTHS. THE BOARD MEMBERS ARE ENERGETIC AND ANXIOUS TO CONTRIBUTE. I MIGHT ALSO ADD, THAT FORMER SENATOR JEREMIAH DENTON, WHO CHAIRED THE COMMISSION ON MERCHANT MARINE AND DEFENSE, PRESENTED THE RESULTS OF THE COMMISSION'S EFFORTS TO THE DMB AT THEIR LAST MEETING IN MARCH 1989.

MR. CHAIRMAN, SPECIFIC TO THE SUBJECT OF THIS MORNING'S HEARING

CONCERNING US MARITIME INDUSTRIES, I WOULD POINT OUT THAT IN 1987 FORMER SECRETARY OF DEFENSE WEINBERGER ADDRESSED THE ISSUE OF THE NEED FOR A NATIONAL SEALIFT POLICY. HE RECOGNIZED THAT THE PROBLEMS OF THIS INDUSTRY WERE BEYOND THE PURVIEW OF THE DEPARTMENT AND WOULD REQUIRE A COORDINATED EFFORT BEGINNING AT THE HIGHEST LEVEL OF GOVERNMENT. HIS EFFORT WAS FURTHER SUPPORTED BY FORMER SECRETARY CARLUCCI WHO IN DECEMBER 1988 NOTED THAT THE UNITED STATES AND ALLIED MERCHANT FLEETS CONTINUED TO DECLINE, AND IN SO DOING INCREASED THE EXISTING RISK TO NATIONAL SECURITY. SECRETARY CHENEY HAS REAFFIRMED OUR POSITION THAT THE NATIONAL SEALIFT POLICY STATEMENT PROPOSED BY DOD PROVIDES AN ESSENTIAL FIRST STEP IN REDRESSING THE DETERIORATED MARITIME CAPABILITIES OF THE UNITED STATES.

WE ALSO SUPPORT THE MARITIME INDUSTRY WITH OUR MANUFACTURING TECHNOLOGY OR "MANTECH PROGRAM." FOR EXAMPLE, MANTECH FUNDS A PROJECT KNOW AS "THE NATIONAL SHIPBUILDING RESEARCH PROGRAM" - A GOVERNMENT/INDUSTRY COOPERATIVE EFFORT AIMED AT REDUCING SHIP PRODUCTION COSTS AND ACCELERATING SHIP AND SUBMARINE DELIVERIES THROUGH IMPROVED SHIPBUILDING/SHIP REPAIR METHODS AND FACILITIES. PARTICIPANTS INCLUDE 26 PRIVATE SHIPBUILDING FIRMS, 8 NAVAL SHIPYARDS, 4 GOVERNMENT AGENCIES, 9 UNIVERSITIES, 12 UNIONS, AND 5 PROFESSIONAL AND TRADE ASSOCIATIONS. TECHNOLOGY INVESTMENT EXAMPLES INCLUDE: DIGITAL DATA TRANSFER, ZONE CONSTRUCTION, WELDING, SURFACE PREPARATION, AND INDUSTRIAL PLANNING. THIS MANTECH PROJECT IS CURRENTLY FUNDED AT $1.2 MILLION AND PROJECTED

TO BE FUNDED AT $1.5 MILLION IN FY 1990.

IN SHORT, MR. CHAIRMAN, DOD IS ACUTELY AWARE OF THE PROBLEMS FACING US MARITIME INDUSTRIES AND CONCURS IN PRINCIPLE WITH THE FINDINGS OF THE COMMISSION ON MERCHANT MARINE AND DEFENSE ON ITS DECLINING STATE. BUT, I MUST ADD THAT THE PROBLEMS FACING US MARITIME INDUSTRIES MIRROR THE PROBLEMS OF MANY OTHER INDUSTRIES THAT ARE ALSO CRITICAL TO NATIONAL SECURITY. THE COMMON TRENDS THROUGHOUT THESE INDUSTRIES ARE THAT THE PROBLEMS AFFECTING THEIR WELL-BEING CLEARLY ARE BEYOND THE SCOPE OR ABILITY OF DOD TO ADDRESS ALONE.

THE NSC HAS BEEN REQUESTED TO PROVIDE OVERSIGHT AND COORDINATION OF THE IMPLEMENTATION OF DOD'S PROPOSED NATIONAL SEALIFT POLICY IN A ATTEMPT TO DEVELOP AN AFFORDABLE, COMPREHENSIVE PLAN OF ATTACK THAT WILL PROVIDE THE UNITED STATES WITH THE REQUIRED MARITIME INFRASTRUCTURE NECESSARY TO EXECUTE OUR NATIONAL STRATEGY.

MR. CHAIRMAN, IN CLOSING I WANT TO EMPHASIZE THAT THE DEPARTMENT SHARES THE SUBCOMMITTEE'S CONCERN FOR THE US MARITIME INDUSTRY, BUT WE ARE ALSO CONCERNED ABOUT THE BROADER ISSUE OF THE WELL-BEING OF THE ENTIRE US INDUSTRIAL INFRASTRUCTURE. YOU CAN BE ASSURED THAT WE WILL CONTINUE TO BE ACTIVE IN PURSUIT OF SOLUTIONS FOR THE WIDE RANGING, COMPLEX PROBLEMS FACING OUR

DEFENSE INDUSTRIAL BASE. THIS CONCLUDES MY STATEMENT. I WOULD BE PLEASED TO RESPOND TO YOUR QUESTIONS.

Mr. MURTHA. Mr. Creelman.

SUMMARY STATEMENT OF MR. CREELMAN

Mr. CREELMAN. Thank you, Mr. Chairman. It is a pleasure to be here and testify before your Committee.

The mandate of the Maritime Administration is to foster the development and encourage the maintenance of our Merchant Marine, including our shipbuilding industry. A commercially viable Merchant Marine is by its very nature, a defense mobilization resource. Within the past month Secretary Cheney has called for the development of a National Sealift Policy.

In addition, Secretary of Transportation Skinner is taking the lead in developing a national transportation policy which will include maritime initiatives.

SHIPBUILDING BASE

The United States active shipbuilding base, as identified by the Navy and MARAD, is composed of those privately owned shipyards which are engaged in or actively seeking construction contracts for major ocean-going or Great Lakes ships of a thousand gross tons or over. As of January, 1989, there were 19 of these shipyards.

The ASB shipyards employ approximately 90,000 people, about 70 percent of the shipbuilding and ship repair industry total work force of about 128,000 people, both of which are down about 25 percent from cyclical peaks in 1981. The remaining 30 percent is distributed among 550 smaller yards and facilities, according to the Bureau of Labor Statistics.

In addition, there are nine government-owned yards which in recent years have not engaged in new construction, but rather in the overhaul and repair of Navy and Coast Guard ships. Total value of work completed by U.S. yards in 1988 was $8.7 billion, down two percent from 1987.

Relative to commercial building, worldwide commercial building has always responded to cycles in world trade patterns and technological changes, as well as to the affection of war-related surges. As of January 1, 1988, there were approximately a thousand ocean-going merchant vessels under construction or on order throughout the world, continuing a pattern of decline from about 2,000 vessels in 1979.

The decline is particularly severe in the traditional European shipbuilding countries. Reflecting that pattern, the U.S. commercial construction market is at its lowest level since before World War II. The order book declined rapidly after 1978 and has remained at nominally low levels throughout the eighties. During '87 and '88, no orders were placed with U.S. shipyards for commercial vessels of a thousand gross tons or over.

The last commercial container ship was delivered by the U.S. yard, Bay Shipbuilding, in Sturgeon Bay, Wisconsin to Sealand Services on November 9, 1987. As of December 1988, our active fleet of 170 ocean-going domestic trade vessels and about 220 U.S. vessels in foreign trade, provide a nucleus of repair work for our yards as do our 64 active Great Lakes Jones Act vessels.

In addition, our coastal, inland, offshore oil service and fishing vessels, provide work to our smaller shipyards. In this area MARAD has two promotional programs to assist building in U.S. yards. Title II program provides for loan guarantees up to 75 percent of a vessel's cost.

The other program is the Capital Construction Fund, which is a tax deferral program. While these two promotional programs are available to both the Jones Act and the U.S. flag international merchant fleet, they are not currently generating new construction because of the high cost of building in U.S. yards. Even with a maximum of 50 percent subsidy to offset foreign costs, U.S. Shipbuilding ceased to be competitive sometime in the late seventies.

This gets to the quote that Mr. Young mentioned earlier, "frequently new ships can be built foreign for one half to one third of U.S. yard costs for the same ship. They can be built in one half the time as well." The most productive foreign yards are also building major commercial ships using as little as 25 manhours per ton of steel erected, while the best U.S. yards presently require more than twice as many manhours. For this reason, our construction differential subsidy program has not been available and was suspended in 1981. There are at present no merchant ships over a thousand gross tons being built in U.S. yards.

READY RESERVE FORCE

MARAD actively supports U.S. yards through the Ready Reserve Force. The RRF, a component of the National Defense Reserve Fleet, was initiated in 1976 to provide assured responsive shipping to support the rapid worldwide deployment of U.S. military forces. Historically about 95 percent of material needed to supply our forces during wartime is transported and must be transported by ships.

The key element of the strategic sealift program, RRF, is structured for quick response ship availability to transport Army and Marine Corps unit equipment and initial resupply for forces deploying anywhere in the world during the critical initial period before adequate numbers of active Navy controlled or commercial ships can be marshaled.

With the current total of 92 RRF ships, the fiscal year 1994 DOD goal is to have a 142 ship RRF consisting of 104 dry cargo ships, 36 tankers, and two troop ships. All repair and maintenance work on vessels purchased through the RRF program must be performed at U.S. facilities.

The addition of 50 ships into the RRF over the next five years will provide the domestic shipbuilding and repair industrial base with an additional estimated $93 million worth of work. To the extent that the additional acquisition of RRF ships are foreign flag, past experience indicates that the cost of reflagging would generate approximately $4 million per ship in U.S. shipyards.

On the basis of MARAD's annual repair and maintenance requirements of approximately $750,000 a ship, we estimate that the maintenance of the entire RRF over the next five years, including the 50 new acquisitions, will provide the shipbuilding industrial base with an estimated average of $170 million worth of work annually.

The fiscal year 1990 budget proposes an RRF funding level of $239 million. While representing a significant increase over MARAD's 1989 level of $110 million, the level requested is very close to the DOD funding levels for the past few years. The funding is needed in fiscal year 1990 if we are to meet the 1994 goal of expanding the current level of 92 RRF vessels to 142. This goal is based on DOD's projections of the shortfall in sealift capability of specific ship types that are required in light of the continuing containerization of the U.S. commercial fleet.

Because of the importance of the RRF to the national security, MARAD and the Navy have urged Chairman Whitten and the Commerce, Justice, State, Judiciary Subcommittee to approve the full funding requested in the President's budget. The funding requested will generate significant work in our shipyards and is vitally needed.

SUMMARY

To summarize, the shipyard moblization base is an integral component of the U.S. national security. As of 1989 U.S. yards are relying mainly on Navy construction and ship repair work. The trend is toward a shipyard base composed of fewer ship construction facilities and a limited number of smaller repair yards. The decreasing capacity of the mobilization base, combined with the loss of critical hard-to-replace skilled labor, the continuous decline of associated production workers, and the erosion of the essential supplier bases, are all factors which if continued for a number of additional years, will have a significant impact on the industry's capability to support a national defense effort.

Finally, Mr. Chairman, I would be remiss in my conclusion if I didn't point out the dilemma with which we are faced during peacetime. On the one hand, we have an international commercial fleet, which cannot be cost competitive in the world market if it has to build its ships in U.S. shipyards with their present higher costs.

On the other hand, the shipyard mobilization base requirements for a national emergency clearly exceed the capacity generated by repair work and new constructions required by the companies operating under the Jones Act. This is not an encouraging picture.

However, these are the types of problems that I believe Secretary Cheney intends for the National Security Council to explore. You can be assured that Secretary Skinner, in developing the maritime portion of the national transportation policy, will be discussing these difficult problems with the Secretary of Defense.

That concludes my statement, Mr. Chairman. I will be glad to attempt to answer your questions.

Mr. MURTHA. Thank you very much.

[The statement of Mr. Creelman follows:]

STATEMENT

OF

WILLIAM A. CREELMAN
DEPUTY MARITIME ADMINISTRATOR

OF THE

DEPARTMENT OF TRANSPORTATION

BEFORE THE SUBCOMMITTEE ON DEFENSE
OF THE HOUSE APPROPRIATIONS COMMITTEE

ON

THE SHIPBUILDING INDUSTRIAL BASE

MAY 11, 1989

STATEMENT OF WILLIAM A. CREELMAN, DEPUTY MARITIME ADMINISTRATOR OF THE DEPARTMENT OF TRANSPORTATION BEFORE THE SUBCOMMITTEE ON DEFENSE OF THE HOUSE APPROPRIATIONS COMMITTEE ON THE SHIPBUILDING INDUSTRIAL BASE

MAY 11, 1989

MR. CHAIRMAN, I AM WILLIAM A. CREELMAN, DEPUTY MARITIME ADMINISTRATOR OF THE DEPARTMENT OF TRANSPORTATION. I APPRECIATE THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY TO DISCUSS THE SHIPBUILDING INDUSTRIAL BASE.

THE MANDATE OF THE MARITIME ADMINISTRATION (MARAD) IS TO FOSTER THE DEVELOPMENT AND ENCOURAGE THE MAINTENANCE OF OUR MERCHANT MARINE, INCLUDING OUR SHIPBUILDING INDUSTRY. A COMMERCIALLY VIABLE MERCHANT MARINE IS, BY ITS VERY NATURE, A DEFENSE MOBILIZATION RESOURCE.

WITHIN THE PAST MONTH SECRETARY CHENEY HAS CALLED FOR THE DEVELOPMENT OF A NATIONAL SEALIFT POLICY. IN ADDITION, TRANSPORTATION SECRETARY SKINNER IS TAKING THE LEAD IN DEVELOPING A NATIONAL TRANSPORTATION POLICY WHICH WILL INCLUDE MARITIME INITIATIVES.

STATUS OF SHIPYARDS

THE U.S. "ACTIVE SHIPBUILDING BASE" (ASB), AS IDENTIFIED BY THE U.S. NAVY AND MARAD, IS COMPOSED OF THOSE PRIVATELY-OWNED SHIPYARDS WHICH ARE ENGAGED IN, OR ACTIVELY SEEKING, CONSTRUCTION

CONTRACTS FOR MAJOR OCEANGOING OR GREAT LAKES SHIPS OF 1,000 GROSS TONS AND OVER. AS OF JANUARY 1, 1989, THERE WERE 19 ASB SHIPYARDS. THE ASB SHIPYARDS EMPLOY APPROXIMATELY 89,700 PEOPLE, ABOUT 70 PERCENT OF THE SHIPBUILDING AND SHIP REPAIR INDUSTRY'S TOTAL WORK FORCE OF ABOUT 127,600, BOTH OF WHICH ARE DOWN ABOUT 25 PERCENT FROM CYCLICAL PEAKS IN 1981. THE REMAINING 30 PERCENT IS DISTRIBUTED AMONG 550 SMALLER YARDS AND FACILITIES, ACCORDING TO THE BUREAU OF LABOR STATISTICS (BLS). IN ADDITION, THERE ARE NINE GOVERNMENT-OWNED SHIPYARDS, WHICH, IN RECENT YEARS, HAVE NOT ENGAGED IN NEW CONSTRUCTION, BUT RATHER IN THE OVERHAUL AND REPAIR OF NAVY AND COAST GUARD SHIPS.

THE TOTAL VALUE OF WORK COMPLETED BY U.S. SHIPYARDS IN 1988 WAS $8.7 BILLION, DOWN 2 PERCENT FROM 1987.

DURING THE 1980'S, THE LARGEST SHIP CONSTRUCTION PROGRAM IN THE U.S. NAVY'S PEACETIME HISTORY -- NEARLY $100 BILLION APPROPRIATED -- HAS BEEN UNDERWAY. CONTRACTS FOR CONSTRUCTION, CONVERSION, AND REPAIR OF NAVY AND COAST GUARD SHIPS ACCOUNTED FOR MORE THAN 90 PERCENT OF THE PRODUCTION WORK FORCE WITHIN THE ASB IN 1988. THIS PERCENTAGE OF EMPLOYMENT SUPPORTED BY NAVY WORK IS EXPECTED TO REMAIN STEADY IN 1989.

COMMERCIAL SHIPBUILDING

WORLDWIDE, COMMERCIAL SHIPBUILDING HAS ALWAYS RESPONDED TO CYCLES IN WORLD TRADE PATTERNS AND TECHNOLOGICAL CHANGE AS WELL AS TO THE AFTER EFFECTS OF WAR-RELATED SURGES. AS OF JANUARY 1, 1988, THERE WERE ONLY APPROXIMATELY 1,000 OCEANGOING MERCHANT TYPE VESSELS UNDER CONSTRUCTION OR ON ORDER THROUGHOUT THE WORLD, CONTINUING A PATTERN OF DECLINE FROM ABOUT 2,000 VESSELS IN 1979. THE DECLINE IS PARTICULARLY SEVERE IN THE TRADITIONAL EUROPEAN SHIPBUILDING COUNTRIES.

REFLECTING THAT PATTERN, THE U.S. COMMERCIAL SHIP CONSTRUCTION MARKET IS AT ITS LOWEST LEVEL SINCE BEFORE WORLD WAR II. THE ORDER BOOK DECLINED RAPIDLY AFTER 1978 AND HAS REMAINED AT A NOMINAL LEVEL THROUGHOUT THE 1980'S. DURING 1987 AND 1988, NO ORDERS WERE PLACED WITH U.S. SHIPYARDS FOR COMMERCIAL VESSELS OF 1,000 GROSS TONS AND OVER. THE LAST COMMERCIAL VESSEL, A CONTAINERSHIP, WAS DELIVERED BY A U.S. SHIPYARD, BAY SHIPBUILDING CORPORATION, TO SEA-LAND SERVICE, INC., ON NOVEMBER 9, 1987.

AS OF DECEMBER 1, 1988, OUR ACTIVE FLEET OF 170 OCEANGOING DOMESTIC TRADE VESSELS AND 220 U.S. VESSELS IN FOREIGN TRADE (1,000 GRT AND OVER) DOES PROVIDE A NUCLEUS OF REPAIR WORK FOR OUR YARDS, AS DO OUR 64 ACTIVE GREAT LAKES JONES ACT VESSELS. IN ADDITION, OUR COASTAL, INLAND, OFFSHORE OIL SERVICE AND FISHING VESSELS ALSO PROVIDE WORK TO OUR SMALLER SHIPYARDS.

IN THIS AREA, MARAD HAS TWO PROMOTIONAL PROGRAMS TO ASSIST BUILDING IN U.S. YARDS. THE TITLE XI PROGRAM PROVIDES FOR LOAN GUARANTEES UP TO 75 PERCENT OF A VESSEL'S COST. THE OTHER PROGRAM IS THE CAPITAL CONSTRUCTION FUND, WHICH IS A TAX DEFERRAL PROGRAM. WHILE THESE TWO PROMOTIONAL PROGRAMS ARE AVAILABLE TO

BOTH THE JONES ACT AND THE U.S.-FLAG INTERNATIONAL MERCHANT FLEETS, THEY ARE NOT CURRENTLY GENERATING NEW SHIP CONSTRUCTION BECAUSE OF THE HIGH COST OF BUILDING IN U.S. YARDS.

U.S. YARDS, EVEN WITH A MAXIMUM OF 50 PERCENT SUBSIDY TO OFFSET FOREIGN COSTS, CEASED TO BE COMPETITIVE IN THE LATE 1970'S. FREQUENTLY, NEW SHIPS CAN BE FOREIGN-BUILT FOR ONE-HALF TO ONE-THIRD OF U.S. YARD COSTS FOR THE SAME SHIPS, AND THEY CAN BE BUILT IN ONE-HALF THE TIME AS WELL. THE MOST PRODUCTIVE FOREIGN YARDS ARE ALSO BUILDING MAJOR COMMERCIAL SHIPS USING AS LITTLE AS 25 MAN-HOURS PER TON OF STEEL ERECTED, WHILE THE BEST U.S. YARDS PRESENTLY REQUIRE MORE THAN TWICE AS MANY MAN-HOURS. FOR THIS REASON OUR CONSTRUCTION DIFFERENTIAL SUBSIDY PROGRAM HAS NOT BEEN VIABLE AND WAS SUSPENDED. THERE ARE AT PRESENT NO MERCHANT SHIPS BEING BUILT IN U.S. YARDS.

READY RESERVE FORCE

MARAD ACTIVELY SUPPORTS U.S. SHIPYARDS THROUGH THE READY RESERVE FORCE (RRF).

THE RRF (A COMPONENT OF THE NATIONAL DEFENSE RESERVE FLEET) WAS INITIATED IN 1976 TO PROVIDE ASSURED, RESPONSIVE SHIPPING TO SUPPORT THE RAPID WORLDWIDE DEPLOYMENT OF U.S. MILITARY FORCES. HISTORICALLY, ABOUT 95 PERCENT OF MATERIEL NEEDED TO SUPPLY OUR FORCES DURING WARTIME IS TRANSPORTED BY SHIPS. A KEY ELEMENT OF THE STRATEGIC SEALIFT PROGRAM, THE RRF IS STRUCTURED FOR QUICK-RESPONSE SHIP AVAILABILITY TO TRANSPORT ARMY AND MARINE CORPS UNIT EQUIPMENT AND INITIAL RESUPPLY FOR FORCES DEPLOYING ANYWHERE

IN THE WORLD DURING THE CRITICAL INITIAL PERIOD BEFORE ADEQUATE NUMBERS OF ACTIVE NAVY-CONTROLLED OR COMMERCIAL SHIPS CAN BE MARSHALLED. WITH A CURRENT TOTAL OF 92 RRF SHIPS, THE FY 1994 DOD GOAI IS TO HAVE A 142-SHIP RRF CONSISTING OF 104 DRY CARGO SHIPS, 36 TANKERS, AND 2 TROOPSHIPS.

ALL REPAIR AND MAINTENANCE WORK ON VESSELS PURCHASED FOR THE RRF PROGRAM MUST BE PERFORMED AT U.S. FACILITIES. THE ADDITION OF 50 SHIPS INTO THE RRF OVER THE NEXT 5 YEARS WILL PROVIDE THE DOMESTIC SHIPBUILDING/REPAIR INDUSTRIAL BASE WITH AN ADDITIONAL ESTIMATED $93 MILLION WORTH OF WORK. TO THE EXTENT THAT THE ADDITIONAL ACQUISITIONS OF RRF SHIPS ARE FOREIGN-FLAG, PAST EXPERIENCE INDICATES THAT THE COST OF REFLAGGING WOULD GENERATE APPROXIMATELY $4 MILLION PER SHIP IN U.S. SHIPYARDS. ON THE BASIS OF MARAD'S ANNUAL REPAIR AND MAINTENANCE REQUIREMENTS OF APPROXIMATELY $750,000 PER SHIP, WE ESTIMATE THAT THE MAINTENANCE OF THE ENTIRE RRF OVER THE NEXT 5 YEARS, INCLUDING THE 50 NEW ACQUISITIONS, WILL PROVIDE THE SHIPBUILDING/REPAIR INDUSTRIAL BASE WITH AN ESTIMATED AVERAGE OF $107 MILLION WORTH OF WORK ANNUALLY.

FY 1990 RRF FUNDING REQUEST

THE PRESIDENT'S FY 1990 BUDGET PROPOSES AN RRF FUNDING LEVEL OF $239 MILLON. WHILE REPRESENTING A SIGNIFICANT INCREASE OVER MARAD'S 1989 LEVEL OF $110 MILLION, THE LEVEL REQUESTED IS VERY CLOSE TO THE DOD FUNDING LEVELS FOR THE PAST FEW YEARS. THE

FUNDING IS NEEDED IN FY 1990 IF WE ARE TO MEET THE 1994 GOAL OF EXPANDING THE CURRENT LEVEL OF 92 RRF VESSELS TO 142. THIS GOAL IS BASED ON DOD'S PROJECTIONS OF THE SHORTFALL IN SEALIFT CAPABILITY OF SPECIFIC SHIP TYPES THAT ARE REQUIRED IN LIGHT OF THE CONTINUING CONTAINERIZATION OF THE U.S. COMMERCIAL FLEET.

BECAUSE OF THE IMPORTANCE OF THE RRF TO NATIONAL SECURITY, MARAD AND THE NAVY HAVE URGED CHAIRMAN WHITTEN AND THE COMMERCE, JUSTICE, STATE SUBCOMMITTEE TO APPROVE THE FULL FUNDING REQUESTED IN THE PRESIDENT'S BUDGET. THE FUNDING REQUESTED WILL GENERATE WORK IN OUR SHIPYARDS AND IS VITALLY NEEDED.

SUMMARY

THE SHIPYARD MOBILIZATION BASE IS AN INTEGRAL COMPONENT OF U.S. NATIONAL SECURITY. ADEQUATE U.S. SHIPYARD CAPACITY AS DEFINED BY DOD IS NECESSARY TO MEET MILITARY MOBILIZATION REQUIREMENTS FOR ACTIVATION OF RESERVE MILITARY AND COMMERCIAL SHIPS, INSTALLATION OF SEALIFT ENHANCEMENT FEATURES, AND BATTLE DAMAGE REPAIRS.

AS OF 1989, U.S. YARDS ARE RELYING MAINLY ON NAVY CONSTRUCTION AND SHIP REPAIR WORK. THE TREND IS TOWARD A SHIPYARD BASE COMPOSED OF FEWER SHIP CONSTRUCTION FACILITIES AND A LIMITED NUMBER OF SMALLER REPAIR YARDS. THE DECREASING CAPACITY OF THE MOBILIZATION BASE, COMBINED WITH THE

LOSS OF CRITICAL, HARD-TO-REPLACE SKILLED LABOR, THE CONTINUOUS DECLINE OF ASSOCIATED PRODUCTION WORKERS, AND THE EROSION OF THE ESSENTIAL SUPPLIER BASE ARE ALL FACTORS WHICH, IF CONTINUED FOR A NUMBER OF ADDITIONAL YEARS, WILL HAVE A SIGNIFICANT IMPACT ON THE INDUSTRY'S CAPABILITY TO SUPPORT A NATIONAL DEFENSE EFFORT.

FINALLY, MR. CHAIRMAN, I WOULD BE REMISS IN MY CONCLUSION IF I DID NOT POINT OUT THE DILEMMA WITH WHICH WE ARE FACED DURING PEACETIME.

ON ONE HAND, WE HAVE AN INTERNATIONAL COMMERCIAL FLEET WHICH CANNOT BE COST COMPETITIVE IN THE WORLD MARKET IF IT HAS TO BUILD ITS SHIPS IN U.S. YARDS WITH THEIR PRESENT HIGHER COSTS. ON THE OTHER HAND, THE SHIPYARD MOBILIZATION BASE REQUIREMENTS FOR A NATIONAL EMERGENCY CLEARLY EXCEED THE CAPACITY GENERATED BY REPAIR WORK AND NEW CONSTRUCTIONS REQUIRED BY THE COMPANIES OPERATING UNDER THE JONES ACT.

THIS IS NOT AN ENCOURAGING PICTURE. HOWEVER, THESE ARE THE TYPES OF PROBLEMS THAT I BELIEVE SECRETARY CHENEY INTENDS FOR THE NATIONAL SECURITY COUNCIL TO EXPLORE. YOU CAN BE ASSURED THAT SECRETARY SKINNER, IN DEVELOPING THE MARITIME PORTION OF THE NATIONAL TRANSPORTATION POLICY, WILL BE DISCUSSING THESE DIFFICULT PROBLEMS WITH THE SECRETARY OF DEFENSE.

THIS CONCLUDES MY STATEMENT. I WILL BE PLEASED TO ANSWER ANY QUESTIONS THE SUBCOMMITTEE MAY HAVE.

Mr. Murtha. We will now hear from the Assistant Secretary of the Navy for Shipbuilding and Logistics, Mr. Pyatt.

Summary Statement of Mr. Pyatt

Mr. Pyatt. It is a pleasure to be here, as always. I appreciate the time of the committee to listen to whatever I might say.

From 1980 to the present time, the U.S. Navy has increased by about 20 percent to about 568 battle force ships today. As you know, they have played an important role.

This growth came at a time critical for the United States shipbuilding industry. It has been detailed here how much the industry collapsed on the commercial side. The military side was not in much better shape in 1980. So it came along at a time that the shipbuilding industry needed the Navy pretty badly. We provided an interim safe haven for the yards and tried to give everybody an open opportunity, a competitive opportunity to get the business.

It was also not limited to a few combatant ships. We had a major building program in sealift. That work built 13 MPS ships, built and modified them; five tankers under charter and many others; hospitals ships; other noncombatants. This provided a substantial amount of work for those shipyards that had not traditionally built combatants.

Today, about 96 percent of the nation's shipbuilding production work force is doing Navy work compared to 57 percent in 1972, and 76 percent in 1980. So the combination of the contraction of the civilian sector and expansion of the military sector leaves it that way.

In addition, Navy ship repair now accounts for 62 percent of the repair work in the active base in contrast to 45 percent in 1972 and 51 percent in 1980. That is why we get into so many debates about ship repair. There is very little else to do and there is excess capacity to do it, and you see people striving for their share of the pie.

Navy shares the concern of the committee and industry about the erosion of the shipbuilding base. Again, that is why we have tried to spread out the work, have competitions, limit the number of ships a single shipyard can bid.

We have also been able to use the $9.3 billion in underruns compared to the President's budget to come back to this committee and others and say, "here are additional ships we would like to build and use our savings," and you have been quite generous in helping us do that. I believe previous policies we talked about when I talked about shipbuilding budgets last week, would have accelerated the contraction. The shipbuilding base today would be notably smaller and less efficient if our ships had been procured on a sole source basis or thinly allocated over a larger number of yards as some have advocated.

Without this Navy competition policy, we would need only one carrier yard, one cruiser-destroyer yard, one submarine yard, and a much more limited range of other yards. I put this in because some people have said that Navy competition policies have driven shipyards out of existence. I think they fail to recognize Navy policies have been the safety net that have kept yards from going out of existence.

SEALIFT AND THE READY RESERVE FORCE

Much has been said recently about the decline in the military suitability of the U.S. Merchant Marine. Sealift is a Navy function, as well as an interagency and naval alliance program. It has been clearly outlined here what the problem is.

We started out in conjunction with MARAD a decade ago or more, building what has become the RRF. At that time, it was conversion of ships that MARAD had taken in on trade. We later expanded it because we saw some opportunities in the world market to pick up some very good ships that were no longer commercially viable but, were militarily useful and we bought a number of ships and now MARAD is carrying on that program.

MOBILIZATION

It has been mentioned that we have raised the national sealift policy issue. I think one of the other issues gets into mobilization. What is mobilization? How much can you pay for it in these austere times? Generally, we believe, in the current financial situation, and the buildup situation that we have been in before, we just can't support and maintain idle industrial capacity either for ships, airplanes, missiles, or electronics, except that which may accrue from our competitive dual source policies.

Some of these things can be built at a higher price, as I mentioned. So, we believe our policies of competitive procurement have served a dual purpose of controlling cost and maintaining a mobilization in the best fashion possible with funds allowed.

We believe the only other way facing the shipbuilding industry is to become competitive in the international market or to be able to prove that this international market has been unfair within the provisions of the national trade laws. I understand that some steps have been taken in that direction, and that has to play out.

But I think we have done our share with the resources that we have had in efficiently spending the money and buying ships competitively. Those who have given us good service and good prices have seen more work, and those who haven't, haven't.

That is the end of my statement, sir.

[The statement of Mr. Pyatt follows:]

Prepared Statement of Hon. Everett Pyatt
Assistant Secretary of the Navy
Shipbuilding and Logistics

I am pleased to appear before this committee today.

Let me begin today by sharing with you some of the Navy's accomplishments during the past decade contributing to the modernization and continued viability of the U.S. shipbuilding industry despite the collapse of the traditional commercial and offshore oil rig shipbuilding business base.

Shipyard Industrial Base

The size of the Navy fleet has increased almost 20% since 1980 from 479 ships then to more than 568 battle force ships today. This growth was accomplished by implementation of the Navy's Maritime Recovery Program at a time critical for the U.S. shipbuilding industry. Both domestic and worldwide demand for commercial new ship construction collapsed due to over capacity and declining orders. The requirement for domestic construction and conversion of U.S. Naval vessels provided an interim safe haven for our most efficient shipyards in an otherwise internationally non-competitive industry.

This influx of military work was not limited to complex tasks performed in heavily capitalized combatant shipbuilding yards, but rather supported a broad range of maritime industry components including the smaller shipyards. Expenditures of $6.9B were made for procurement of sealift ships, specialized support ships and equipment and the conversion of many commercial ships to military configurations including 13 Maritime Prepositioning Ships.

Over 96% of today's shipbuilding production workforce is performing Navy work in contrast to only 57% in 1972 and 76% in 1980. In addition, Navy ship repair now accounts for 62% of the repair work in the active base in contrast to 45% in 1972 and 51% in 1980.

The Navy shares both the committee and industry concerns about the continuing erosion of the U.S. shipbuilding base and the potential for adverse impact on our mobilization base. Recent Navy fleet expansion has served to limit this contraction. Savings of $9.3B have been used to provide funds to procure and activate additional Navy ships thus increasing the work for U.S. shipyards. Previous policies would have accelerated the industry decline. The shipbuilding base today would be notably smaller and less efficient if our ships were procured on a sole source basis or thinly allocated over a larger number of yards thereby foregoing the efficiencies of series construction. Without the Navy competition policy, we would need only one carrier/destroyer yard, one submarine yard and a much more limited range of other yards.

Sealift

Much has been said recently about the decline in the size and military suitability of the U.S. Merchant Marine. Sealift is a Navy function, as well as an interagency and NATO alliance problem. The Navy has procured 51 ships for the Ready Reserve Force (RRF) in recognition of the alliance-wide decline of these sealift assets. We have raised the issue of the declining merchant fleet to the National Security Council via the Secretary of Defense. However, the Navy and the Department of Defense cannot solve this problem alone.

Some have falsely attempted to use the decline in sealift assets as a basis for peacetime support of excess shipyard industrial capacity. Sealift ships cannot, however, be built after the start of a war and be of use in the early most demanding stages of the war. Navy mobilization requirements consist of completion of ship construction ongoing at mobilization, activation of the Ready Reserve Fleet and certain inactive Navy ships, sealift enhancements to selected merchant ships and battle damage repair. Additional ship construction is the lowest priority during wartime mobilization.

Summary

The Navy must spend its funds in the most efficient manner. The Navy does not support and maintain idle industrial capacity for other critical hardware; aircraft, missiles and electronics. The Navy as currently and historically budgeted cannot afford to support excess industrial capacity beyond that required to support peacetime production. We believe our policies of competitive procurement support the dual purpose of controlling costs and maintaining a mobilization base in the best fashion possible. The only other way to expand capacity is for the shipyards to become competitive in the international market or demonstrate under the provision of the trade law that they have been harmed by unfair competition.

Mr. MURTHA. Mr. Miller.

SEALIFT BUDGET DEVELOPMENT

Mr. MILLER. Thank you, Mr. Chairman.

Mr. Donnelly, to what extent do you get involved in the budget discussions within the Defense Department?

Mr. DONNELLY. Mr. Miller, our office has oversight for budget categories 78011, which is Industrial Preparedness in its broadest sense. Not necessarily just for mobilization, but for current production as well. I do not oversee shipbuilding, but I do oversee the manufacturing infrastructure that DOD believes is required.

Also, like any other employee of the Office of the Secretary of Defense, we look at the budget two or three times a year during the POM development of the President's budget.

Mr. MILLER. Do you feel your Industrial Program Office has a strong enough voice to insure dollars get committed to solving the problems that you have identified in your statement?

Mr. DONNELLY. I think our people do a good job in identifying the role that increased investments in the industrial base can play. In fact, they do a very good job of doing that. Now, I would be the first to admit that there is not enough dollars available for the things that we would like to have done, but we are listened to.

Mr. MILLER. What, in your opinion, is the best way to improve the industrial base?

Mr. DONNELLY. We have learned a lot about how not to improve it over the years; that is, artificial fixes such as, procurement restrictions, where we restrict procurement of a commodity to domestic sources to maintain a mobilization base. If you do that in the absence of other programs to assist industry to rebuild and modernize during that period of time when this restriction is in place, we really don't fix it. As a matter of fact, sometimes a procurement restriction can literally make matters worse. For example, let's say we are in the business of producing synthetic goat feathers and we decide we are going to restrict all production of "feathers" to the United States. If I am a goat feather producer, why is it in my interest to invest in new capacity if I know I can sell everything through a procurement restriction?

So, some of these measures could be counterproductive. We have learned while completing our research and follow-on report, "Bolstering Industrial Competitiveness Report" which I mentioned earlier, that there are some things the Defense Department can do at the margin and we are doing those things through programs such as, our manufacturing technology program, and industrial modernization incentives programs.

But we are up against a national problem here in terms of industrial base response and it requires a national solution. The way we look at it, there is no defense industrial base in this country. There is an industrial base. The Defense Department is another customer, consumer, claimant for those resources.

Adding up the government-owned yards, plus aerospace facilities that we own, we have 65 plants, but we do business, as you well know, with over 20,000 individual contractors at the prime contractor level. So we are dealing, for the most part, with a commercial infrastructure out there. To the extent it becomes unviable, unproductive, and all those other un-words, then so go our acquisitions on them.

So we have an interest. Some things we can do directly. Other things have to be accomplished through broader economic policies.

Mr. **Miller**. What is the current shortfall in the Defense Department strategic sealift?

Mr. **Moore**. Sir, in the Defense Department we try to balance airlift and sealift capability. In other words, the airlift will provide a capability to move things early on. Sealift provides the biggest bulk, approximately 90 percent, of the follow-on capability.

Our main shortfall right now is in ships to carry unit equipment. We are at about 82 percent of that requirement at the present time, even though we are buying 40 or 50 ships and putting them in the RRF. Due to the declining commercial fleet, it keeps us about even, or about 82 percent of where we want to be on ships that are useful for carrying unit equipment.

Mr. **Miller**. You tell me, should it be 100?

Mr. **Moore**. That is our goal, sir.

Mr. **Miller**. How strongly is the Defense Department committed to solving this shortfall?

Mr. **Moore**. We are very strongly committed to it. As Mr. Donnelly indicated, the Secretary of Defense has submitted to the National Security Council a proposed National Sealift Policy that we feel will address those things that need to be addressed to answer the shortfall. We feel it is an interagency problem.

One of the items related to the sealift policy issue is a proposal to establish an interagency group. This group would look at this problem across the entire government and all the component parts, and decide if we are putting our money into the right places.

Mr. **Miller**. There are all sorts of arbitrary standards in the Defense Department when it comes to the allocation of budget amounts. The Navy budget is consistently about 30 percent of the Defense Department overall, and shipbuilding budgets are usually around $10 billion a year. If the Navy were tasked with the responsibility for a major sealift procurement program, would the Defense Department revise these arbitrary allocations to reflect such a program change?

Mr. **Moore**. I am not sure I completely understand your question. Are you asking whether we would consider including in the budget a major commercial shipbuilding program?

Mr. **Miller**. If the Navy were tasked with responsibility for a major sealift procurement program, would the Defense Department revise these arbitrary allocations to reflect that type of program—that more should be spent in that area?

Mr. **Moore**. Sir, that is a question, a rather hypothetical question as to how we meet the sealift shortfall. I think that is an issue that would have to be taken up in your program and budget process. We believe there are less expensive ways to meet our sealift shortfall than engaging in a program for building commercial-type ships. As I mentioned and as Mr. Creelman mentioned, we do plan to add 40 to 50 ships to the RRF over the next five years. We can do that at a reasonable cost.

Engaging in a commercial construction program is a very expensive effort and would require very serious budget considerations and tradeoffs. Right now, we do not have the resources to engage in such a program.

Mr. **Miller**. If we were into a major sealift procurement program, there would be something happening ahead of time apparently to justify it. We have the Air Force coming to justify their budget and we talk about sealift with them and what amount and volume of personnel and cargo can be shipped. So they are competitive to you to some degree, but they surely cannot haul the tonnage that you would be able to haul.

Mr. **Moore**. In the Office of the Secretary of Defense we look at both programs and try to balance the two programs. We are at about 69 percent of the airlift we would like to have, and, as I mentioned, 82 percent of the sealift. In actuality, we are in poorer shape on the airlift side than we are on the sealift side.

So it is a question of trying to balance the two programs to build toward our long term goal. We are trying to keep rough quotas in those programs.

Mr. **Miller**. Very good. Thank you.

Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Young.

FOREIGN SHIPYARD PRODUCTIVITY

Mr. **Young**. Thank you very much, Mr. Chairman. I would like to go back to Mr. Creelman's statement which I referred to in the first part of our session and time ran out before we could fully explore that. We did talk about the fact that labor costs were considerably higher. I think we all understand that. But what we didn't get to talk about was Mr. Creelman's statement that most productive foreign yards are also building major commercial ships using as little as 25 manhours per ton of steel erected, while the best U.S. yards presently require more than twice as many manhours.

Now, that doesn't go to the question of dollars per hour paid to the worker. But why does it take a worker in Korea or Japan less time to erect that ton of steel than it does in the U.S. yard.

Anybody?

Mr. **Creelman**. Well, let me address the point and the source of my information. I was in a German yard last year which was building very large commercial U.S. flag container ships, to Coast Guard standards, I might add. I was aware there were substantial subsidies involved in that process. So, I was most interested in finding out about the competitiveness of the yard in terms of productivity compared with American yards.

I was able to draw out of the representatives of the shipowner as well as the representative of the shipbuilder these rough comparisons, which I have put forward in my statement. I find that it is very difficult to ask an American ship operator to subsidize a production program which is as far out of competition as U.S. yards appear to be in terms of manhours per ton.

The question of cost is another issue altogether, as is the question of the comparative standards of living in the United States versus other countries, particularly the Asian countries. But, it seems to me that the fatal flaw in our previous subsidy programs in the United States, and the CDS program has been mentioned many times, especially by the shipyard witnesses—the fatal flaw in that program was that it did not have built into it an incentive for productivity. It simply paid the difference between foreign production costs and U.S. production costs, without regard to productivity.

It seems to me as we look down the road, we are going to have to structure a system, if we have one at all, that encourages and rewards productivity. There is no reason in the world why our yards in the United States and our workers in the United States cannot produce ships just as efficiently, in terms of manhours per ton, as any foreign yard. We ought to be able to exceed foreign standards if we provide the right incentives for that to be accomplished.

Mr. YOUNG. Do you believe an incentive program would increase the manhour production? Is an incentive program that effective?

Mr. CREELMAN. Certainly not alone, but there are a number of other things mentioned which certainly play a part. One needs to have a continuous back order, a line of production, in order to achieve high productivity. One needs to have a certain standardization in types of vessels to construct. You can't build one of a kind and be as productive as you would like to be. There need to be incentives, as well, for capital investment in facilities that would make ship production more efficient.

All those things are part of the fabric that is needed in order to have a highly competitive shipbuilding scheme.

Mr. MILLER. Would the gentleman yield at this point?

Mr. YOUNG. Certainly.

Mr. MILLER. I didn't quite understand when you mentioned that you need a back order in order to have high productivity. Would you explain that a little?

Mr. CREELMAN. I may have misspoken. I intended to mean that you can't build one ship and then wait a year and build another. You need to have a continuing line of production, a backlog of work to do, in order to be consistently productive. You can't stop and start your plant and lay off workers and go back and find them again, and expect to be highly productive. You need to have work, and to be able to expect more work coming on, rather than to have continuous layoffs.

Mr. MILLER. Thank you.

SHIP CONSTRUCTION IN 1988

Mr. CREELMAN. Mr. Miller, while you have the floor, you asked a question earlier, and I, by coincidence, happen to have some statistics put together by our Office of Trade Analysis as to which countries produce the most ships. My numbers show that for 1988 Korea, the Republic of Korea, was number one with 32.6 percent of the dead weight shipping production. Japan was number two with 26.2 percent. Taiwan was number three with 5.1 percent, a big drop there. Number four, rather surprisingly, is Yugoslavia, 4.7 percent. Followed by Brazil, with four percent.

I would be happy to provide this if you would like.

Mr. MILLER. The list continues on down?

Mr. CREELMAN. Yes.

Mr. **Miller**. If we could have that for the record, I would appreciate it.

[The information follows:]

LEADING COUNTRIES IN MERCHANT SHIP CONSTRUCTION

SOURCE: OFFICE OF TRADE ANALYSIS AND INSURANCE
MARITIME ADMINISTRATION

	1977			1988		
COUNTRY	DEADWEIGHT (000)	PERCENT	RANK	DEADWEIGHT (000)	PERCENT	RANK
TOTAL	100,040.0			34,976.1		
JAPAN	32,841.2	32.8%	1	9,175.8	26.2%	2
SWEDEN	7,396.7	7.4%	2	5.0	0.0%	33
SPAIN	6,747.1	6.7%	3	565.9	1.6%	13
UNITED STATES	6,119.3	6.1%	4	91.2	0.3%	24
BRAZIL	5,642.4	5.6%	5	1,389.2	4.0%	5
UNITED KINGDOM	5,367.9	5.4%	6	153.3	0.4%	19
FRANCE	4,024.2	4.0%	7	136.0	0.4%	20
POLAND	3,478.0	3.5%	8	1,021.2	2.9%	8
GERMANY(FED REP)	3,140.4	3.1%	9	712.6	2.0%	11
BULGARIA	2,534.8	2.5%	10	313.0	0.9%	15
ITALY	2,497.7	2.5%	11	1,278.2	3.7%	6
DENMARK	2,171.7	2.2%	12	865.4	2.5%	9
U.S.S.R.	2,133.3	2.1%	13	108.2	0.3%	22
ROMANIA	2,117.3	2.1%	14	851.3	2.4%	10
KOREA (REP OF)	1,664.9	1.7%	15	11,413.4	32.6%	1
FINLAND	1,459.1	1.5%	16	83.1	0.2%	26
YUGOSLAVIA	1,334.4	1.3%	17	1,648.9	4.7%	4
TAIWAN	1,253.4	1.3%	18	1,779.9	5.1%	3
NORWAY	1,205.5	1.2%	19	78.3	0.2%	27
INDIA	1,177.6	1.2%	20	703.1	2.0%	12
CANADA	805.4	0.8%	21	0.0	0.0%	
BELGIUM	691.4	0.7%	22	117.7	0.3%	21
PORTUGAL	680.0	0.7%	23	88.3	0.3%	25
GERMAN DEM. REP.	579.1	0.6%	24	221.7	0.6%	17
NETHERLANDS	547.4	0.5%	25	92.6	0.3%	23
ARGENTINA	511.3	0.5%	26	248.5	0.7%	16
PERU	495.2	0.5%	27	0.0	0.0%	
GREECE	432.4	0.4%	28	55.9	0.2%	29
SINGAPORE	259.6	0.3%	29	0.0	0.0%	
TURKEY	217.5	0.2%	30	318.7	0.9%	14
AUSTRALIA	150.1	0.2%	31	0.0	0.0%	
CHINA	95.0	0.1%	32	1,189.4	3.4%	7
ALL OTHERS	268.7	0.3%		270.3		

Mr. **Creelman**. The United States is number 24 on the list with 0.3 percent of dead weight tonnage.

Mr. **Miller**. So instead of absolute zero—we heard a little while ago no ships above a thousand tons have been constructed here.

Mr. **Creelman**. That is correct. These numbers are awfully difficult to tie together from time to time, and this must include some vessels under a thousand gross tons, or there wouldn't be any at all.

Mr. **Miller**. Thank you.

FOREIGN PRODUCTIVITY

Mr. **Young**. Mr. Chairman, I won't dwell on this particular statement that Mr. Creelman made at such length if it were only a 10 or 15 or 25 percent penalty. But we are talking about 100 percent penalty here on the time that it takes to build a ship, manhours foreign, versus manhours U.S. I agree with the many things that you have said, that we need to build more ships, and if we had more ships coming through the line, we could become far more cost effective, in building those ships.

Also, I want you to know I would never suggest that our shipbuilders should live a reduced lifestyle comparable to what the worker would in Korea or Japan. I would never suggest that. But still, just the money aside, the time involved to build a ship in a foreign yard is half the time it takes to build a ship in a U.S. yard. There has got to be more to it than the things you said, I would think.

Maybe I am wrong. But that is a hundred percent penalty timewise that we are talking about.

Mr. **Creelman**. Yes. I spent the day with the shipyard management in Germany trying to get to the root of that myself. I was very impressed with what I saw. I should say that I asked them to what they attributed the difference. Was it their workers? They said no, they didn't think so. They felt they had good workers, but they weren't miracle workers.

But they had very good physical facilities. They had extraordinary crane capabilities that ran in a linear fashion through the yard, making it possible to erect ships very efficiently, and they had—and they emphasized this—hands on management and excellent planning. As a result, they were very productive, and as productive as they were, they were continuing to improve those very simple facilities.

This was a small yard in Germany, not a great big yard. Many of the yards represented here today are much larger yards than this small yard in Germany. But it was extremely well laid out to be productive in manufacturing ships. So, while I am certainly not here to recommend any particular program, I think whatever program we may eventually come to as a result of the various sealift recommendations, that the transportation policy recommends, needs to have as a focus rewards for productivity. These avoid the differences internationally of cost and wage scales, but look at what can be produced per man hour, whatever the cost.

Mr. **Murtha**. I wonder if Mr. Pyatt would like to comment on this?

Mr. PYATT. I would like to, and I would also like to ask two gentlemen here who run shipyards to make a comment. I see two that would build the kinds of ships that are described.

I think I would like to start out by saying in the era we saw of construction differential subsidies I think the observation by Mr. Creelman is absolutely accurate. There was no reason to get out on the foreign market and become competitive and so the controversy principle worked. Then it all disappeared cold turkey, no place left to turn, no transition.

Along with it came national policy of other countries to build ships in their country. I don't know of an American shipbuilder who has ever had the opportunity to bid on a foreign ship and see how good they were.

These gentlemen may dispute that. Nor would I see reason to be glum about their abilities, given the opportunity. I have seen in our business, which is a much different business than commercial ships, in our business in the last decade, a major turnaround of productive capacity, of innovation, creativity, and we have seen it in costs. I think it is quite a tribute to what has happened.

I don't see why the same thing couldn't happen in the commercial sector if we can ever get around to make foreign ship operators at least give these guys an opportunity to submit a bid, and they haven't had it.

With that, Mr. Bossier or Mr. Vortmann, may disagree.

FOREIGN SUBSIDIES

Mr. YOUNG. Have U.S. yards been allowed to bid on U.S. flagged ships built in foreign yards?

Mr. PYATT. I don't know. Maybe they were. I am not familiar with that particular program, sir.

Maybe these gentlemen can comment.

Mr. CREELMAN. If I might, in terms of that last question, I am remiss in not having introduced to you when I began, Mr. Tom Haller, who is our Associate Administrator for Ship Construction and Ship Operations. He has been with MARAD about a year, and prior to that time was with commercial ship operating companies, including the American President Lines, whose ships I visited in Germany.

Tom, did they have an opportunity to compare bids in the United States yards for those ships?

Mr. HALLER. On those ships no pricing was performed in American yards that I know of.

Mr. MURTHA. What was that again now?

Mr. HALLER. They didn't go out for pricing in America at all. The reason for that was they had permission to build foreign and it was obvious that they would be able to get them. In point of fact, the ships' cost—the fact it was built in Germany—was substantially under the Japanese price at the time, a peculiar situation.

Mr. MURTHA. The German price was under the Japanese price?

Mr. HALLER. Yes sir.

Mr. MURTHA. Subsidized?

Mr. HALLER. Yes.

Mr. MURTHA. Substantially subsidized?

Mr. **Haller**. The Germans have three specific subsidies that were operating at the time. They get down to the point where even the small town the ship is built in is subsidized.

Mr. **Murtha**. Is this the difference between the prices Mr. Young was talking about?

Mr. **Haller**. Yes. Not in terms of manhours, but in the pricing.

Mr. **Murtha**. All right. In the price. But he is saying the difference is in the subsidy. But now in the manhours obviously if it takes twice as many manhours for our shipbuilders to build them it is going to cost more money. So what is the difference there?

Mr. **Haller**. Well, as Mr. Vortmann pointed out, or Mr. Stocker, I forget which, about half of a ship's cost is based on its labor. That is in the United States. If the labor is far more efficient, it may change that ratio, don't you see?

Mr. **Young**. But if it takes twice as long, how can you call that efficient? Maybe we are missing something here.

Mr. **Haller**. They built the ships in half the time it would take here.

Mr. **Young**. That is what I am saying.

Mr. **Murtha**. We can't understand why it would take American shipbuilders twice as long to build a ship as it does a foreign operator. We heard you have got to have ships in line. The more ships you build obviously the more efficient it is. But that is an awful big difference to make up—twice as many hours or half, if that is accurate.

Mr. **Haller**. I believe it is accurate, because of the simple fact that it is not only the man hours and the steel material going into the ships, but it is also the cost of all of the elements that make up the vessels' outfit, and its machinery that constitute the parts that go into a ship.

Mr. **Murtha**. Are you saying then they are only measuring the manhours actually in the shipyard? Is that what you are saying?

Mr. **Haller**. Yes, sure.

Mr. **Murtha**. So the engine and the various parts that are shipped in is not counted into this. What percentage of the final cost of the ship is that?

Mr. **Haller**. The other portion of the ship cost would be all of the steel and material. That is 50 or 60 percent, or 40 percent, as they were talking. Now, those are also subsidized. In point of fact, you can't build a vessel—let me put it this way—you can build a ship in Korea for the price of the materials in the United States. Now, how do you account for that?

Mr. **Young**. Subsidized?

Mr. **Haller**. There is no labor involved in that. That is where we are in the world today.

Mr. **Miller**. Would the gentleman yield?

Mr. **Murtha**. Yes, sure.

Mr. **Miller**. A few years ago we were confronted with the problem of West Germany shipping steel, structural steel to us. We put it down on the East Coast, for less than what it cost us to produce it. Our trade ambassadors found, after quite an extensive study, that the West German government and local government had built subsidized housing close to the steel mill. That isn't a direct subsidy, but it turned out to be a subsidy. The workers did not draw as much. They did not need as much. They had very little rent to pay. Do we find the same thing going on in the shipyards around the world?

Mr. HALLER. Mr. Miller, Mr. Stocker has put out a report that describes the number of different subsidy methods that have been used by the foreigners to acquire a market, and they go from methods of finance to taxation, to direct subsidization and all of these different things, and they are all effective.

Mr. MILLER. That is very interesting. I would like to see a copy of that.

[The information follows:]

Shipbuilders
Council of
America

SPECIAL REPORT

SHIPBUILDING AID IN THE WORLD'S LEADING SHIP-PRODUCING NATIONS

OCTOBER 1988

SHIPS ON ORDER AT THE WORLD'S TOP-PRODUCING SHIPBUILDING CENTERS AND TYPES OF SUPPORT PROVIDED FOR SHIPYARDS IN THESE NATIONS

Which countries are building the most number of ships today and how does each of these countries support its shipbuilding industry? Is there a link between active government support of shipyards and the ability to be competitive in the world marketplace?

Statistics for the number and origin of ships currently on order throughout the world provide a base for exploring answers to these questions. Ships on order in 33 countries were listed in the July 21 issue of Fairplay. For our purposes, we have limited the list to the 17 countries with the most orders.

SHIPS ON ORDER BY COUNTRY OF BUILD, APRIL-JUNE 1988

Country	No.of Ships	Country	No.of Ships	Country	No.of Ships
1. Japan	165	6. West Germany	43	12. Denmark	26
2. S. Korea	135	7. Bulgaria*	42	13. Netherlands	23
3. Poland*	50	8. Romania*	38	East Germany*	23
4. China*	48	9. Brazil	35	14. Finland	22
5. Yugoslavia*	46	10. Spain	32	15. USSR*	20
		11. Italy	30	16. Taiwan	16

* Govt.-controlled

Seven of the top seventeen ship-producing countries listed above have communist governments with centrally planned economies that control their maritime industries. The ten remaining "free-world" countries are building the following kinds of ships:

TOTAL ORDERS BY SHIP TYPE FOR COUNTRY OF BUILD, APRIL-JUNE 1988

	Type of Ship:						
Country	Dry Cargo	Container	Tanker	Bulker	Ro-Ro	Total	dwt
1. Japan	32	11	67	51	4	165	9,932,956
2. S. Korea	12	13	73	33	4	135	12,536,780
3. W. Germany	14	20	5	-	4	43	879,765
4. Brazil*	2	2	21	5	5	35	1,345,250
5. Spain	14	-	16	1	1	32	1,196,570
6. Denmark	8	8	9	-	1	26	733,630
7. Netherlands	8	-	12	-	3	23	74,975
8. Finland*	11	-	10	-	1	22	84,100
9. Italy*	6	8	8	4	4	30	1,033,510
10. Taiwan	-	8	2	6	-	16	1,502,800

* No new contracts during the quarter

The next table is a comparison between total orders and orders placed during the quarter.

SHIPS ON ORDER BY COUNTRY OF BUILD, APRIL-JUNE 1988
TOTAL ORDERS AND NEW CONTRACTS FOR PERIOD

	Total on Order		Total New Contracts	
Country	Ships	dwt	Ships	dwt
Japan	165	9,932,956	46	2,298,938
S. Korea	135	12,536,780	21	1,557,650
W. Germany	43	879,765	12	255,700
Brazil	35	1,345,250		
Spain	32	1,196,570	2	127,000
Denmark	26	733,630	4	12,200
Netherlands	23	74,975	12	37,175
Finland	22	84,100		
Italy	30	1,033,510		
Taiwan	16	1,502,800	4	275,260

How many of the free-world's top-ten ship-producing nations listed above have aid programs that directly or indirectly assist their shipyards? The answer: ALL of them. This report quantifies these measures of assistance.

The following quote is taken from the Introduction to Maritime Subsidies, a report prepared by the Maritime Administration's (MARAD's) Office of International Activities and published in June 1988. The report is intended as a reference volume on the kinds of aid provided by 54 countries for their respective maritime industries--shipping and shipbuilding.

"A national merchant fleet is believed to be of vital economic and security interest by many of the world's governments. In order to ensure that these interests are upheld, many governments have developed aid programs to support their maritime industries."

The MARAD volume is the primary source for the subsidy information contained in this report, supplemented by Measures of Assistance to Shipbuilding, published by the Organization for Economic Cooperation and Development (OECD), 1987, and miscellaneous other sources.

The kinds of aid countries provide to enhance the ability of their shipyards to successfully compete for shipbuilding contracts varies, but usually includes one or more of the following:

- Long-term, low-interest loans to ship buyers;
- Government guarantees for loans;
- Construction subsidy grants to the shipbuilder;
- Government funds to finance scrapping of uneconomical ships and/or to reduce the overcapacity in shipbuilding facilities;
- Favorable tax and/or depreciation benefit schemes;
- Customs duty exemptions or rebates for imported materials used in ship construction; and
- Research and development funding to advance ship technology.

Favorable Financing - In general, low-cost financing--that is, loans offered by public and private banks for a substantial portion of a ship's cost, repayable over a long period of time at low rate of interest--has been favored by Japan (#1), Brazil (#4), and Denmark (#6), in recent years, with Brazil and Japan having utilized this method of assistance particularly heavily.

For example in FY 1987, Japan provided approximately $582.5 million in ship production loans. Of this, $518.5 million was funded through the Japan Development Bank for the purchase of highly modernized ships, and $64 million was for export credits through the Japan Export-Import Bank. Finland (#8) provides interest subsidy loans to Finnish shipowners as needed.

Subsidy Grants - The method of government aid for shipbuilding preferred in West Germany (#3), Spain (#5), and the Netherlands (#7) is to provide direct construction subsidies to shipyards for a percentage of the contract price. Although in theory, Germany limits its subsidies to 20 percent of the ship contract price; in practice, these grants have reached the 28% ceiling allowed by the Sixth Directive of the European Community (EC). Germany's 1988-1991 budget for shipyard subsidy grants is DM 700 million, which is approximately $372 million, funded two-thirds by the federal government and one-third from state governments.

Toward the end of 1987, Spain had reduced its shipyard subsidies to the EC's 28 percent maximum. The Netherlands (#7), in light of the subsidies allowed by the EC's Sixth Directive, created a new subsidy grant program funded at approximately $98 million for 1987 through 1989, replacing a program of decreasing subsidies that ended Jan. 1, 1987. Individual grant subsidies under the new program range from 3 to 14 percent.

Loans and Subsidies - Italy (#9) has been providing long-term loans and interest subsidies (about $97.4 million in 1986) to ship buyers as well as direct subsidy grants to shipyards (25%, 15%, and 11% depending on shipyard size in 1984-1986. Budget: about $500 million). Details of Italy's latest program were not available, although the country has said the new program will be within the guidelines of the Sixth Directive.

South Korea (#2) has also utilized favorable loans to ship buyers and the Korean government has alluded to subsidization of shipyards although details of the shipyard subsidies were not specified in the source materials used for this report. Even less information is available on Taiwan (#10), which has provided public financing for the four-year program of the Ministry of Communications for 32 ships and has claimed granting an unspecified amount of construction subsidies for ships ordered from and registered in Taiwan.

Government Guarantees - Denmark provides loan guarantees for ships ordered by Danish operators and for the construction or conversion of small freighters. Finland's guarantees cover losses caused by cost escalation during construction of export ships. In Germany, the coastal states may grant credit guarantees for ships built within their boundaries. Japan provides guarantees for debt payments related to the reduction of shipyard facilities (approximately $370.4 in FY 1987).

EXAMPLES OF GOVERNMENT FUNDING FOR SHIPYARD AID

Country	Purpose	Amount
JAPAN (#1)	a. Ship Production Loans, FY 1987 JDB for purchase of highly modernized ships (135 yen-$1)	$518,520,000
	Ex-Im Bank for export credit (125 yen-$1)	$ 64,000,000
	b. Shipyard Reorganization Aid, FY 1987 Govt. purchases of redundant docks, lands (135 yen-$1)	$222,222,000
	Govt. guarantees for debt payments related to yard facilities reductions	$370,370,000
WEST GERMANY (#3)	a. Ship Construction Subsidy Fund, FYs 1988-1991 (DM 700 million)	$372,000,000
	b. Loan Subsidies to Shipowners, For exports to developing countries, FYs 1987-1989	$258,600,000
	Interest-free loans for shipbuilding, FY 1987 fund (discont. 7/1/87)	$ 84,800,000
DENMARK (#6)	a. Loans to Shipowners, 1985 Govt. cost of home credits	$ 8,300,000
	Govt. cost of export credits	$ 42,200,000
	b. Minister of Industry Guarantees, 1986 Building of small cargo ships	$ 16,700,000
	Building of other ships	$ 69,800,000
	c. Other Ship Building Guarantees, 1986	$139,600,000
ITALY (#8)	a. Ship Construction Subsidy Fund, FYs 1984-1986	$500,000,000
	b. Interest Subsidies to Shipowners, FY 1986	$ 97,400,000
	c. Shipyard Reorganization Aid FYs 1984-86	$ 36,000,000

Shipyard Reorganization and Ship Scrapping Aid - Although Japan does not give subsidy grants to yards for ship construction, the government does provide aid for reorganizing, modernizing, or otherwise reducing shipyard capacity. In April 1987, the Japanese government established a five-year shipyard rationalization program, which provides for government purchases of redundant docks and land (FY 1987 funding: $222.2 million) and for government guarantees for debts associated with operational adjustments and retirement payments associated with shipyard reductions (FY 1987 funding: $370.4 million). Tax benefits are also provided.

From December 1978, Japan has provided financial assistance to scrap uneconomic oceangoing vessels as a method of reducing the world's oversupply of ships. Since 1986, however, the utilization of this funding has decreased as ship scrapping has becoming less popular, due in large measure to the extremely volatile nature of scrap prices.

Italy, which reorganized 90 percent of its shipyards into the publicly-owned FINCANTIERI between 1984-1986 and provided $36 million in aid, currently provides funding to shipyards equal to 20-30 percent of the investment costs for reorganization or conversion. Italy also proves government assistance for scrapping ships above 150 tons. Spain's government assistance program for ship scrapping has not been very successful, probably because its compensation rates were too low. Currently, West Germany provides shipyard modernization and conversion funding through the coastal states.

Ship R&D Funding - Government assistance for ship-related research and development is provided by the governments of Japan, West Germany, Denmark, the Netherlands, and Italy. In Japan, annual research funding is provided through the Ship Research Institute attached to the Ministry of Transport (MOT). In August 1988, it was reported that the MOT was ready to finance the prototype of a high speed ocean cargo vessel, which will cost approximately $44 million.

The most recent figure available concerning shipbuilding R&D funding from the government of Germany was approximately $16.2 million for 1986. Italy's shipbuilding and ship propulsion R&D contribution in that year was approximately $25.6 million. Denmark's ship research support amounts to about $.5 million annually. Ship research activities in the Nether- lands is funded on a 50:50 basis by the government and the maritime industry.

Tax Benefits - In nine of the top-ten ship-producing countries, shipbuilders have been exempted from customs duties for materials used in ship construction. The policy for the tenth country, the Netherlands, was not included in the source document used for this report.

Other tax reductions and exemptions for investing in ships vary from country to country. For shipowners, a major tax write-off is linked to depreciation. Advance write-offs for depreciation up to a certain percentage of the purchase price is currently allowed before the ship is delivered in South Korea, Finland, and Denmark. In addition to the regular depreciation allowed, special depreciation under certain conditions is allowed in Japan, Germany, and Denmark.

Another tax benefit allowed in Japan, Germany, Spain, Denmark, the Netherlands, Finland, and Italy is the availability of tax reserves for book profits on ships sold (or a substantial portion thereof). Japan, Spain, Denmark, the Netherlands, and Finland also allow other funds to be placed in tax reserve status.

The table on the following page summarizes the major kinds of benefits that assist shipyards in the free-world's top-ten shipbuilding nations. For purposes of comparison, the United States is also listed.

Immediately following the table, the categories of favorable financing, shipbuilding subsidy grants, and yard reorganization and ship scrapping aid are discussed in more detail. Finally, the appendix summarizes, in table form, the information used in the preparation of this report.

SUMMARY OF SHIPYARD-RELATED AID AVAILABLE IN THE TOP-TEN SHIPBUILDING NATIONS AS COMPARED WITH THE UNITED STATES

Country	Shipowner Favorable Financing	Ship-Building Subsidies	Yard Reorg. Aid; Ship Scrapping	Ship R&D Funding	Tax Benefits	Import Duties Exempt.
1. JAPAN	Yes ***	Unknown	Yes **	Yes *	Yes	Yes
2. S.KOREA	Yes	Yes Unspecified	Unknown	No	Limited	Yes
3. WEST GERMANY	Yes	Yes ***	Yes-reorg. Fed/State	Yes	Yes	Yes
4. BRAZIL	Yes ***	Not Govt.	No	No	Unknown	Yes
5. SPAIN	Yes	Yes ***	Limited	No	Unknown	Yes
6. DENMARK	Yes	Yes **	No	Yes	Limited	Yes
7. NETHERLANDS	N/A	Yes *	No	Yes	Limited	Unknown
8. ITALY	Yes **	Yes **	Yes	Yes	Yes	Yes
9. FINLAND	Yes	No	No	Unknown	Yes	Yes
10. TAIWAN	Yes	Yes Unspecified	Unknown	No	Yes	Yes
UNITED STATES	No	No	No	Limited	Limited	Limited

*** of primary importance
** very important
* important

LOW-INTEREST, LONG-TERM FINANCING ENHANCES SHIPYARD COMPETITIVENESS

Most of the top-ten shipbuilding nations of the free world make available long-term, low interest loans to ship buyers for a substantial percentage of ship cost at a low rate of interest. The emphasis on this type of financial assistance, however, varies from country to country.

Member countries of the Organization for Economic Cooperation & Development (OECD) are supposed to subscribe to the provisions of the OECD Understanding on Export Credits for Ships, which limits loans for export ships to 80 percent of the ship, repayable at a maximum of 8½ years from delivery, at a minimum interest rate of 8 percent per year. (Of course, if commercial rates are below 8 percent, then the commercial market would provide ship financing.)

According to a report in Shipping & Trade News, Sept. 2, 1987, Japan has repeatedly proposed that the OECD lower its credit terms to reflect lower worldwide interest rates, and an article in the Oct. 7, 1987, issue of the same magazine reported that Japan's Export-Import Bank had financed a contract last year between Hitachi Zosen and the Overseas Shipholding Group of the U.S. at 5 percent interest for two 260,000 dwt VLCCs. In general, however, Japan, Denmark, Italy, and Finland provide export credit terms at OECD rates. Germany offers 2 percent interest subsidies to bridge the gap with OECD rates.

Other kinds of ship financing with attractive terms offered in the world's top-ten ship producing nations are described below:

Japan (#1) - To encourage the construction of highly modernized oceangoing vessels such as containerships and LNG carriers, the Japan Development Bank (JDB) provides Japanese shipowners with 60 percent financing, repayable over 10 years after a 3-year grace period. The interest rate during the first part of 1988 was 5 percent. Private banks cover 20-40 percent of the ship's cost at the prime rate.

For other types of ships, the JDB provides 50 percent financing with commercial banks covering 25 percent. (JDB's financial resources are capital borrowings from the government and the capital market.) For Japan's FY 1987, the government provided $518.5 million through the JDB for the purchase of highly modernized ships, as well as funding $64 million in export credits through the Export-Import Bank.

South Korea (#2) - Loans to shipowners have been available in Korea to cover 90 percent of the shipbuilding cost (92 percent for a containership), with repayment for local funds (covering 70 percent of construction) at 10 percent interest over 8 years, with a 2½-year grace period. There are indications, however, that these programs are under review and have lead to reports of options ships cancelled by South Korean shipyards.

West Germany (#3) - Under certain conditions, West German shipowners can receive interest-free loans until 1990. In 1987, the West German government provided $84.8 million for this purpose. The government also provides interest subsidies (2 percent in 1987) for loans to build ships for export to developing countries. The 1987-1989 budget for this purpose is approximately $258.6 million.

Brazil (#4) - A number of financial packages offering extremely favorable terms is offered by Brazil to entice both local and foreign owners to buy Brazilian ships. One of these schemes features the buyer obtaining a foreign bank loan on which the Bank of Brazil pays the interest.

Spain (#5) - Loans are available to cover 85 percent of the cost, repayable in 12 years with a 2-year grace period. The minimum interest rate is 8 percent, except for fishing vessels, which is 11 percent.

Denmark (#6) - As a temporary measure to encourage ship orders at Danish and EEC yards, offered 80 percent credit for ships ordered by the end of 1986 and delivered before the end of 1989, with repayment at 8 percent over 14 years, including a 4-year grace period. Various Danish shipping firms own six big shipyards in Denmark that employ about 75 percent of the total shipbuilding labor force.

The Netherlands (#7) - The Dutch government can provide an interest subsidy when the need exists. From 1980 through 1985, for example, $267.8 million in interest subsidies was provided. Currently, because the market interest rate is below 8 percent, ship financing is a commercial matter tied to commercial financing.

Italy (#8) - Fifteen-year loans authorized by the appropriate Italian government office can be made for up to 70 percent by the Instituto Mobiliare Italiano and other financial institutions for the construction, modernization, and repair of ships. If the Italian government determines that a need exists, temporary incentives are provided to Italian shipowners to purchase ships. Since 1982, for example, Law 261 provides for interest subsidies of 2.75 to 3.2 percent over 12 years. Interest subsidy funds were approximately $97.4 million in 1986. (Approximately 90 percent of the shipbuilding in Italy is owned and operated by FINCANTIERI, a holding company in which IRI, an agency of the Ministry of State Holdings owns 100 percent of the stock.)

Finland (#9) - To promote the acquisition of small ships suited for inland and coastal transport or for foreign trade, Finland provides interest subsidies.

Taiwan (#10) - For the 4-year Ministry of Communications program in Taiwan for the construction of 32 ships, public financing is provided at 80 percent, repayable over 12 years at 8½ percent interest.

Government Guarantees

In addition to the favorable financing practices described above, governments in Japan, West Germany, Denmark, and Finland provide guarantees of various loans associated with shipbuilding.

As part of a comprehensive program to assist shipyards in reducing excess capacity, Japan guarantees payment of debts associated with the scrapping or reorganization of redundant building berths or docks at shipyards with 5000 grt or more capacity. Japan also has a credit guarantee program to aid shipowners in scrapping uneconomical ships.

Coastal states in West Germany may grant limited credit guarantees for the purchase of commercial ships built in their respective states.

The government of Denmark guarantees ship purchases by Danish shipowners (limited to $48 million in 1986, the most recent figures available), and guarantees up to $14 million per year for the construction or conversion of small freighters.

Finland provides government guarantees to cover losses caused by cost escalation during construction of export ships. In addition, Finland's State Guarantee Board may provide guarantees for the acquisition of ships less than 10 years old. Specific guarantee amounts vary with the individual shipowners, but the maximum guarantee fund is $417 million.

SHIPYARD SUBSIDY GRANTS IN THE WORLD'S TOP SHIP-PRODUCING NATIONS

EC Subsidy Policy - Within the European Community (EC), shipbuilding subsidies are intended to close the gap between EC shipbuilding prices and those of yards outside the EC -- primarily Far East yards. The EC's Sixth Directive, effective since January 1, 1987, sets a subsidy ceiling of 28 percent of the contract price of a new ship, if the contract price is over $ 6 million, and a 20 percent ceiling for a new build with a lower contract value. (Spain and Portugal, as new EC members, have a four-year exemption from the ceiling.) If several EC yards are competing for an order, the usual practice is for the Commission to apply the lowest level of state aid.

The subsidy policy contained in the Sixth Directive, which is in force until 1991 and is subject to annual revisions, includes direct aid to shipyards and some forms of indirect aid, such as investment aid to shipowners and tax incentives to investors. Not counted against the EC subsidy ceiling is aid for shipyard restructuring directed toward irreversible capacity reductions.

Unlike previous EC directives, the Sixth Directive does not require the progressive reduction in subsidies with the goal of eventual elimination; however, it does require the most complete reporting on state aids ever undertaken. These programs, now more transparent, will be the subject of an EC report to be issued later this fall.

West Germany (#3) - As the world's third-place ship-producing country and the leading EC shipbuilding nation, West Germany has made subsidies the primary focus for shipyard assistance in the construction of high technology vessels.

In general, Germany allows subsidies of up to 20 percent of the contract value when required to be competitive against other bidders, with two-thirds of the subsidy coming from the federal government and one-third from the state in which the shipyard is located. However, Germany will grant subsidies to the 28 percent level if needed for their shipyards to win the competition.

These subsidies are structured by the Ministry of Economic Affairs and are managed through a quasi-public sector agency known as the Credit Institute for Redevelopment. The 1988-1991 budget for direct aid is DM 700 million (approximately $371 million).

The EC Commission's Sixth Directive permits member states to exclude from the subsidy ceilings any aid provided to developing countries. Thus Germany has a second program, financed by the Ministry of Economic Cooperation, which has provided 25 percent subsidies to the HDW and Bremer Vulkan shipyards to win contracts for orders from Zim Israel and a Singapore-flag company. These subsidies were contingent on certification of Israel and Singapore as developing countries.

The federal government of Germany holds a 55 percent position in the HDW shipyard, with State Schleswig-Holstein holding a 26.1 percent position. Equity financing was not raised in private capital markets, but rather from appropriated funding sources.

Some of Germany's shipyards, all of which are managed as private enterprises, have extensive equity ownership by public sector authorities. The State of Breman owns 39 percent of the ordinary capital of a medium-size shipyard located within its territory. State Schleswig-Holstein owns 25 percent of a large shipyard, of which the remaining 75 percent is held by the joint stock company of a state-owned steel mill. In addition, the city of Flensburg holds 15.5 percent of the ordinary capital of a medium-size yard.

Spain (#5) - Spain's shipbuilding industry is owned by the government's National Institute for Industry (INI) but is run by three private companies. A relatively recent newcomer to the EC, Spain has been working toward reducing government subsidies to the 28 percent maximum contained in the EC's Sixth Directive. Toward the end of 1987, Spain limited direct subsidies for ships valued at over 14 million European Currency Units (ECUs) and at 19 percent for vessels valued at less than 6 million ECUs. Refits benefit from a 20 percent subsidy.

Denmark (#6) - Assistance in this country, in which the Danish shipping firms own six big shipyards that employ about 75 percent of the total shipbuilding labor force, favors financing schemes for shipowners rather than grants to shipyards.

The Netherlands (#7) - In 1980, the Dutch government budgeted for direct subsidies to the shipbuilding industry. Each year the amount budgeted for the subsidy fund was reduced. By the end of 1986, the Dutch government had intended to abolish this aid altogether.

During 1985 and 1986, a separate budget was set up for each yard that had succeeded in producing sea-going vessels during the 1981-83 reference period. Out of this budget, equal to .75 percent of the yard's average annual turnover during the reference period, production aid could be granted for 5-10 percent of the contract price.

The Dutch government had intended to abolish this aid program altogether by the end of 1986. However, because of the government subsidies allowed by the EC's Sixth Directive, the Dutch government decided to put a new program in places at the time information was being collected for the MARAD report.

Italy (#8) - Under a three-year program ending December 31, 1986, Italy provided direct subsidies for the construction and repair of ships at 25, 15, and 11 percent to small, medium, and large shipyards, respectively. Amounts budgeted for the program approximated $500 million. According to the U.S. Maritime Administration (MARAD) report dated June 1988, the Italians are drawing up a new text within the framework of EC regulations. (Shipyard reorganization aid is discussed in another section.)

Outside of the EC, two of the remaining five countries in the top ten--Japan (#1) and Finland (#9) do not provide government subsidies directly to shipyards for ship construction. (Aid from the Japanese government to reduce shipbuilding capacity is discussed in another section.)

Brazil (#4) levies a tax on shipping companies. These revenues go into a fund that is earmarked for the purchase, construction, and modernization of ships. That portion of the revenues allotted to the Merchant Marine Fund can provide 25 percent subsidies to Brazilian shipping companies for the purchase of Brazilian vessels.

Korea (#2) and Taiwan (#10) have provided government subsidies for ship construction, but information on specific subsidy practices by these governments was not available.

GOVERNMENT AID TO REDUCE SHIPYARD CAPACITY AND SCRAP UNECONOMICAL SHIPS

During the 1960s and into the 1970s, orders for new cargo ships--particularly tankers--were placed in record numbers. Shipyards worldwide geared up to fill the orders. In just a decade, the shipbuilding centers of Europe had increased capacity by 136 percent and Japan by 650 percent.

The "golden age of shipbuilding" was brought to a halt by the oil crisis and subsequent quadrupling of oil prices in the mid 1970s. This situation precipitated a significant decrease in the growth of seaborne trade, and the oversupply of tonnage throughout the world became apparent. Consequently, traditional shipbuilding centers of the world found themselves with too much shipbuilding capacity for the shrinking new-ship market. Further exacerbating the problem was the entry into the competitive world shipbuilding market of countries with extremely low labor rates, namely South Korea and Taiwan.

Shipyard Reorganization Aid

Reduction of shipbuilding capacity has been carried out with government assistance in some countries. In Italy (#8), for example, current shipyard reorganizations or conversions are assisted by government contributions that correspond to 20 percent of investments for medium-small shipyards and 30 percent for large shipyards. From 1984-1986, Italy carried out a restructuring plan which placed 90 percent of its shipyards into FINCANTIERI, a holding company in which IRI, an agency of the Ministry of State Holdings, owns 100 percent of the stock.

In West Germany (#3), federal programs have been supplanted by state-sponsored programs. Currently, the coastal states fund approximately one-third to one-half of the costs associated with various shipyard rationalization efforts, ranging from modernization to diversification to shipyard closings, within their respective boundaries.

Japan (#1) probably has the world's most comprehensive government-assisted shipyard modernization and rationalization programs aimed at reducing its vast overcapacity. Although Japan has been the leading ship-producing nation in the world for over 20 years, shipbuilding is still a depressed industry in this country, which has had to contend with rising labor costs and appreciation of its currency (the yen), as well as the general market slump.

Government and private shipyards in Japan have been involved in a working partnership since the inception of the shipbuilding industry. An advisory council to the Ministry of Transportation (MOT), established in 1952, is made up of representatives from the shipping, shipbuilding, ship machinery, and steel industries, labor, educational institutions, and the press. Called the Council for Rationalization of the Shipping and Shipbuilding Industries (CRSSI), it has helped shape all of the major government policies related to shipbuilding, including the current shipyard modernization and rationalization effort.

Other industry associations have also been actively involved in shaping government policies and practices. Furthermore, the Japan Fair Trade Commission has allowed its major shipbuilders (24 yards with building capacity of 10,000 or more gross tons) to form a cartel, the goal of which is to limit ship production. In March 1988 the major shipyards reorganized from 44 (21 groups) into 26 (8 groups).

Under current law, funding has been established until April 1992 for the Japanese government to purchase redundant facilities and lands from shipyards with 5,000 or more grt capacity and to guarantee debts resulting from shipyard reorganizations. In addition, special tax reductions and exemptions have been granted.

Ship Scrapping Aid

The corollary to the reduction of the shipyards' physical facilities is the reduction in the world's oversupply of ships. The government of Japan in particular has provided financial incentives to shipowners to scrap large, uneconomic vessels. Italy also has provided subsidies for scrapping tonnage, and to a lesser extent, Spain. However, ship scrapping has not been very popular during the past couple of years, largely because of the instability of scrap metal prices.

In Spain, the low rate of government compensation ($9.50 per dwt for non-bulk vessels) probably contributed to the low volume of scrapped tonnage. In Italy, government funding for ship scrapping was established by law in 1984, at a rate of $36-$72 per ton for ships above 150 tons. The subsidy amount is in inverse proportion to the age of the vessel scrapped, tonnage scrapped must be at least twice that of tonnage to be built.

In FY 1978, the government of Japan instituted a subsidy program to scrap primarily uneconomic oceangoing vessels, providing financial assistance at approximately $9-11 per grt, raised to approximately $16-18 per grt in 1983. From December 1978 to October 1985, about 3 million grt was scrapped under this program. In 1986, a law was passed to establish new aid for scrapping efforts. In addition, a government guarantee fund was set up to remove existing mortgages on ships to be scrapped and to pay retirement allowances for seafarers employed on these ships. The guarantees will be in effect until August 1991.

Japan also has a program for owners of coastal vessels, whereby uneconomical vessels can be scrapped and new ones built. Ownership is held jointly with the government's Maritime Credit Corporation, which pays 70-80 percent of the construction cost. The shipowner pays a fee to use the vessel during the joint ownership period, which is from 7 to 15 years.

SUMMARY AND CONCLUSIONS

Since the mid-1970s, a variety of government assistance programs were instituted by nations anxious to preserve their shipbuilding capability. By 1981, however, it was already becoming clear that government intervention alone would not save shipyards, although it might extend some of their lives.

Today we have concrete examples that a yard's chances of survival do not necessarily increase in proportion to the amount of government assistance it receives. Sweden's shipbuilding industry, for instance--once second only to Japan and one of the most heavily subsidized--is virtually gone today. Great Britain's yards are another example. Nationalized in 1977, they have lost so much money that the government has adopted a privatization program to sell them off.

On the other hand, it has become just as clear that it is impossible for shipyards that receive no government support to compete successfully against those that do. Hans-Jakob Kruse, Chairman, Hapag-Lloyd AG, Hamburg, West Germany, expressed this reality thusly in a guest editorial published in The Journal of Commerce (Aug. 12, 1988):

> "The idea of removing competitive anomalies by reducing subsidies to zero is quite appealing . . . However, things are not quite that simple. Although there are many differences in political and commercial systems, countries nowadays are closely intertwined commercially, leaving little room for positive unilateral actions. It would certainly be a bold gesture if a country were to abolish all its subsidies, but the only result would be that its industry would henceforth be at a competitive disadvantage vs. its subsidized competitors."

The shipbuilding industry in the United States offers a vivid illustration of Mr. Kruse's premise. In 1981, when governments in Europe and the Far East were providing their shipyards with direct and indirect subsidies ranging from 10 to over 60 percent, the United States moved to discontinue funding of shipbuilding assistance programs contained in the Merchant Marine Act of 1936, including Construction-Differential Subsidies (CDS), Capital Construction Fund (CCF), Mariner Program (build and charter), and Title XI federal ship mortgage insurance.

As a result, the U.S. shipbuilding industry, forced to compete against heavily-subsidized foreign yards in an environment of unfair trade practices, has been devastated. From January of 1982 to the present, more than 75 shipyards or ship repair facilities have closed and over 52,500 production worker jobs have been lost.

It is no coincidence that shipyards in the world's leading ship-producing countries receive substantial government support. The objective of this report has been to quantify the kinds of assistance which have significantly contributed to the ability of these shipbuilders to capture the most ship construction orders.

APPENDIX

TABLE 1A
SPECIAL FINANCING FOR SHIPBUILDING IN "TOP TEN" SHIP-PRODUCING NATIONS

Country	Loan Type
JAPAN (#1)	a. Loans to Japanese shipowners o For highly modernized ships: from govt.-sponsored shipbuilding program through Japan Development Bank (JDB), 60% financing at 5% interest (early 1988 rate) with repayment over 10 yrs. after 3-yr. grace period, plus 20% from private bank at prime rate (early 1988 rate, 5.5%) payable over 8 yrs. after delivery. o For other ships: 50% JDB financing plus 25% commercial bank financing, same terms and interest as above. o FY 1987 JDB loan fund: $518.52 mil. (@135 yen=$1). b. Export credit loans o 35% Export-Import Bank/35% private bank loans to Japanese shipyards for 8.5 years after ship completion, at approx. 8% interest. Same terms must be given by shipyard to shipowner, with 20% paid at delivery. o FY 1987 Ex-Im Bank loans avail. to Japanese Ministry of Transport: $64 mil. (@125 yen=$1). c. Loans for shipyard restructuring For 10 yrs. at 5% interest (2/88 rate).
S. KOREA (#2)	a. Loans to shipowners cover 90% shipbuilding cost (92% for containership) with repayment for local funds (covering 70% of construction) at 10% interest over 8 yrs. with 2.5 yrs. grace. b. Export loans to foreign shipowners or Korean exporters for up to 56% from Korean Export-Import Bank, with repayment over 8 yrs. at 9% interest, and loans from other banks for up to 24% with repayment over 5 yrs. at interest based on London Interbank Offered Rate (LIBOR).
W. GERMANY (#3)	a. Loan subsidies to shipowners o Interest free loans under certain conditions. Available until 1990. 1987 funding: $84.8 million. o 2% interest subsidies allowed for export ships to developing countries to bridge gap with OECD rates. 1987-1989 budget: $258.6 million.

TABLE 1A (Cont'd)
SPECIAL FINANCING FOR SHIPBUILDING IN "TOP TEN" SHIP-PRODUCING NATIONS

Country	Loan Type
BRAZIL (#4)	a. Ship export financing o Alt. 1: Buyer pays 10% down during construction and receives 90% loan from Bank of Brazil Foreign Exchange Section (CACEX) payable over 10 yrs. (with 1-yr. grace period) at 8.5% interest. o Alt. 2: Buyer obtains foreign bank financing with Bank of Brazil paying the 8.5% (or more if interest increases) over 10 yrs. o Current terms of CACEX export credit financing for foreigners: 15-20% down, 8% annual interest, 8 yrs. to pay (1-yr. grace period after delivery). b. Govt. loans to Brazilian shipping lines up to 85% of ship cost repayable over 15 years at 5-10% interest. c. Merchant Marine Fund (FMM) financing: o 90% loans available to Brazilian shippers for vessels constructed in Brazilian shipyards. o Up to 80% available to foreign carriers for purchase of Brazilian ships.
SPAIN (#5)	a. Loans to Spanish shipowners o Ship construction loans (except for tankers and bulkers) available from the Construction Credit Bank (BCC) and private banks for 80% of price at 8% interest, repayable in 12 yrs. with 2-yr. grace period. b. Ship conversion & repair loans to Spanish shipowners o Available from the BCC at 70% of the value at 8% interest for 5 yrs. with 1-yr. grace period. c. Export Credit for Ships The Banco Exterior and private banks provide export loans for 70% of the contract price for 7 yrs. at 6.9% plus various charges adding up to a gross rate of 8%.
DENMARK (#6)	a. Loans to shipowners from Ship Credit Fund o May not exceed 50% of ship value unless supported by supplemental security. Applies to foreign and Danish owners for ships built in Danish yards. Same rates to Danish owners for EC country-built ships. o Home credit fund, $418.7 mil; govt. cost, $8.3 mil.

TABLE 1A (Cont'd)
SPECIAL FINANCING FOR SHIPBUILDING IN "TOP TEN" SHIP-PRODUCING NATIONS

Country	Loan Type
DENMARK (Cont'd.)	b. Export credit for ships from Ship Credit Fund o OECD Understanding* export credit terms for foreign flag ships built at Danish yards for Danish citizens. o 1985 govt.-supported export credit costs, $42.2 M. c. Loans to shipowners, temporary measure 80% credit, repayment at 8% interest over 14 yrs., incl. 4-yr. grace period, for ships ordered from Danish or EC yards by end of 1986 and delivered before end of 1989. Supp. credit if required to buyers outside Denmark.
NETHERLANDS (#7)	a. Interest subsidies for shipowner loans Interest subsidy provided for; but current market interest rate is below 8%. 1980 through 1985, $267.8 M provided. b. Export credits for ships OECD Understanding export credit terms to foreign owners for ships built in Dutch yards.
ITALY (#8)	a. Loans and interest subsidies o Loans up to 70% made by the Instituo Mobiliare Italiano and other financial institutions for the construction, modernization, and repair of ships and authorized by the appropriate Italian govt. office, are repayable in 15 yrs (since May 1987). o Italian shipowners are allowed interest contributions of 2.75% of the contract price over 12 years; 3.2% interest for ships of less than 5,000 grt if used for transport of liquid bulk or liquefied gas or to 3,000 grt for all other units (since June 1982). Interest subsidy funds were approximately $97.4 million in 1986. b. Export credit Financing follows OECD Understanding terms.
FINLAND (#9)	a. Loans to Finnish shipowners (home credit) o Central Bank of Finland financing available to Finnish shipowners, ordering new or converted ships at Finnish yards, for 80% of ship cost, repayable over 8 yrs. 1987 interest rate: 8.5%.

*Organization for Economic Cooperation & Development Understanding on Export Credits for Ships: 80% (max.) credit, repaid in equal semiannual installments over 8½ yrs. (max.) from delivery, at 8% (min.) per year.

TABLE 1A (Cont'd.)
SPECIAL FINANCING FOR SHIPBUILDING IN "TOP TEN" SHIP-PRODUCING NATIONS

Country	Loan Type
FINLAND (Cont'd.)	b. Export credit Financing through the govt.-controlled Finnish Export Credit Ltd. at OECD Understanding rates.
	c. Interest subsidy loans Loans to Finnish shipowners for ships built in Finnish shipyards for domestic or foreign commerce generally at OECD-established rates. However, interest rates may be subsidized to match subsidies in other countries; e.g., 2% subsidies, so interest rate is 6% instead of OECD rate of 8%.
TAIWAN (#10)	4-yr. Ministry of Communications program for 32 ships Govt. providing public financing at 80% repayable over 12 yrs. at 8.5% annual interest.

TABLE 2A
GOVERNMENT GUARANTEES OF SHIPBUILDING LOANS IN TOP SHIP-PRODUCING NATIONS

Country	Description of Government Guarantee
JAPAN (#1)*	Govt. guarantees payment of debts associated with the scrapping or reorganization of redundant building berths or docks at shipyards with 5,000 grt or more capacity. FY 1987 budget: $370,370 mil. (@135 yen=$1).
W.GERMANY (#3)	Coastal states may grant limited credit guarantees for purchase of commercial ships if credits cannot be secured by ship mortgages.
DENMARK (#6)	Minister of Industry guarantees o Issued for building of small cargo ships. 1983 through 1986, each year: $16.7 million. o Other ships, 1986 total: $69.8 million. Other government guarantees o Up to $48 million in 1986 for ships ordered by Danish shipowners. o Up to $14 million per yr. for construction or conversion of small freighters. o Total of $139.6 million for 1986.
FINLAND (#9)	o Govt. guarantees covering losses caused by cost escalation during construction of export ships. o Guarantees from State Guarantee Board may be provided for acquisition of ships less than 10 yrs. old built at home or abroad. Specific guarantee amounts vary with shipowners. $417 million max.

*Does not include Japan's credit guarantee program to shipowners for ship scrapping.

TABLE 3A
CONSTRUCTION SUBSIDY GRANTS TO YARDS IN THE TOP SHIP-PRODUCING NATIONS

Country	Description of Subsidy*
S. KOREA (#2)	Specific subsidy amounts not reported. However, in 1976 the Korean govt. proclaimed that, where possible, all new ships for the Korean merchant fleet would be built in Korean yards with govt. subsidization of shipowners and shipyards.
W. GERMANY (#3)	o 1988-1991 direct aid subsidy fund is DM 700 million (about $372 million). o Subsidy max: 20% of contract price, 2/3 from federal govt. and 1/3 from state in which yard is located. (However, Germany will grant subsidies up to the European Community's Sixth Directive** ceiling of 28% if needed to win a contract.) o Subsidies to developing countries not subject to above ceiling. Recently, Israel and Singapore were classified as developing countries, and on this basis, the German government granted 25% subsidies to two German shipyards.
BRAZIL (#4)	Revenues from the Freight Additional for Renewal of the Merchant Marine (AFRMM) fund are earmarked for purchase, construction, and modernization of ships. This fund comes from a tax levied on shipping companies. [That portion of the revenues allotted to the Merchant Marine Fund (FMM) can provide 25% subsidies to Brazilian shipping companies for the purchase of Brazilian vessels.]
SPAIN (#5)	Subsidy maximums: o 28% for ships over 14 million European Currency Units (ECUs), o 19% for value under 6 million ECUs, and o 20% for refits.

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* Does not include reorganization/modernization/conversion subsidies for shipyards, scrap or scrap and build subsidies, or tax incentives.

** Subsidy guidelines as set forth by the European Community Commission in the Sixth Directive set a top limit of 28% of the contract price for a ship valued at over $6 million and a 20% ceiling for a ship valued at under $6 million. The subsidy policy is effective until 1991 and is subject to annual revisions. There are no subsidy ceilings for aid provided to a developing country by an EC member.

TABLE 3A (Cont'd.)
CONSTRUCTION SUBSIDY GRANTS TO YARDS IN THE TOP SHIP-PRODUCING NATIONS

Country	Description of Subsidy
NETHERLANDS*** (#7)	1980 through 1986: Program of gradually decreasing subsidies. Total funding, approx. $464 million. Because of EC subsidy guidelines, a new aid program created for 1987 through 1989.
ITALY (#8)	1984-86 program: 11%, 15%, and 25% subsidies, depending on shipyard size. New program will be within EC guidelines. Funding: approx. $500 million.
TAIWAN (#10)	Unspecified amount of construction subsidies granted for ships ordered from Taiwan and registered in Taiwan.

*** Does not include the fleet modernization program of the Dutch government, which granted a premium of 5 x 2.1% of the contract price to Dutch shipowners ordering new sea-going merchant vessels. Premiums granted by Dutch government under new fleet modernization program as of 1987.

TABLE 4A
AID FOR SHIPYARD REORGANIZATION & SHIP SCRAPPING PROGRAMS AMONG THE TOP SHIPBUILDING NATIONS

Country	Description of Aid
JAPAN (#1)	a. 5-yr. shipyard rationalization aid (4/87 law) o Govt. guarantees for payment of debts related to scrapping/reorganizing redundant docks/facilities at shipyards with 5,000 or more grt capacity. FY 1987 funding: $370,370 mil. (@135 yen-$1). o Govt. purchases of part of redundant facilities and lands at shipyards with 5,000 grt capacity. FY 1987 funding: $222,222 mil. (@135 yen-$1). o Tax exemption of 10% of capital investment to convert to different industry and other tax benefits. b. Ship scrapping aid o 12/78-10/85: Govt. assistance to shipbuilders to scrap mainly uneconomic oceangoing vessels (2,500 grt or over) started at approx. $9-11 per grt, raised to approx. $16-18 per grt in 1983. (3 million grt scrapped under this program. Cost: approx. $40.5 million.) New funding in 1986. Also a govt. guarantee program until 8/91. o Owners may scrap uneconomic coastal vessels and build new ones for joint ownership with govt.-owned Maritime Credit Corporation, which pays 70-80% of construction cost. Private shipowner pays fee to use vessel during joint ownership period of 7-15 yrs.
W.GERMANY (#3)	a. Shipyard reorganization Some federal aid provided in past yrs., e.g., $9.5 million in 1983 and 4.5 million in 1985. As of 2/87, coastal states providing aid for rationalization, modernization, conversion, diversification of shipyards within their respective boundaries.
SPAIN (#5)	a. Ship scrapping Govt. scheme as of 5/30/86 provided low rate of compensation ($9.50 per dwt for non-bulk vessels); therefore, not taken advantage of.
ITALY (#8)	a. Shipyard reorganization 1984-86 restructuring plan carried out through reorganization of 90% of shipyards into publicly-owned FINCANTIERI holding company. Funding: approx. $36 mil. Current funding equal to 20-30% of investment required for shipyard reorganization or conversion. b. Ship scrapping Govt. assistance of between 50,000-100,000 lire ($36-72) per ton provided for ships above 150 tons that are demolished (Law 848, 10/84).

TABLE 5A
RESEARCH & DEVELOPMENT FUNDING PROGRAMS OF TOP SHIPBUILDING NATIONS

Country	R&D Funding Program
JAPAN (#1)	o Ship Research Institute, attached to the Ministry of Transport, has annual research funding. FY 1986 budget: approx. $4.7 million. o 1987 and 1988 budgets not known. However, one known 1988-89 project is the development of a 7 billion yen (approx. $44 million) prototype of a high-speed cargo ship.
W.GERMANY (#3)	The federal govt. contributes funds to research projects related to shipbuilding and offshore. Contributions in 1985 were approx. $13.2 million and in 1986, $16.2 million.
DENMARK (#6)	Financial support to institutions engaged in shipbuilding research amounts to about $.5 million a year.
NETHERLANDS (#7)	Research activities are financed on a 50:50 basis by the Dutch government and the maritime industry.
ITALY (#8)	The Italian government contributes to research activities related to shipbuilding and ship propulsion, including prototype R&D. 1986 contribution: approx. $25.6 million.

EXAMPLES OF SHIPBUILDING SUBSIDIES: WEST GERMANY

1. Shipbuilding Subsidy-Grant Policy - The West German government has provided shipbuilding-related subsidies since 1965. Since July 1, 1987, the policy has been to provide subsidies to West German shipyards for up to 20 percent of the contract price with 2/3 paid by the federal government and 1/3 by the state in which the yard receiving the subsidy is located. West Germany's 1988-1991 Ship Construction Subsidy Fund is DM 700 million (about $372 million). The grants are subject to the restrictions of the Sixth Directive of the European Community (EC).

2. Subsidization of APL Containerships - Not all of the shipbuilding subsidy-grants paid by the West German government come from the Ship Construction Subsidy Fund, nor have they been subject to the 20 percent ceiling. A case in point was the DM 125 million ($66.4 million) subsidy paid on a total contract value of DM 543,000,000 ($288,829,787) for five containerships built by Bremer Vulkan and Howaldtswerke Deutsche Werft (HDW) shipyards for American President Lines (APL). This money was appropriated by special order of the Cabinet from Ministry of Defense funds. An additional DM 150 million ($79.8 million) in working capital was provided to the shipyards by the federal government and the state of Schleswig-Holstein. Notification of the national security grant was filed with the European Commission on December 30, 1986. The capital infusion was approved in 1987.

3. Subsidy Grants for Zim Israel Containerships - There are no subsidy ceilings for shipbuilding contracts with developing nations for members of the European Community. Classifying Israel as a "developing nation," the West German government in July 1988 paid a 25 percent subsidy on an estimated $100 million contract for four containerships to be built for the Zim Israel shipping by the HDW and Bremer Vulkan yards. (Bremer Vulkan later transferred its order to HDW.) In early 1989, the HDW yard offered Zim Israel a low-credit package subsidized by a West German government grant equivalent to 30 percent of the contract price for three containerships. The EC Commission is investigating the German government bid because in November 1988 the Commission tightened criteria for determining developing nation status for shipbuilding purposes, effectively excluding Israel.

4. Loan Subsidies - The policy of the West German government is to provide loan subsidies of 2 percent to bridge the gap with Organization for Economic Cooperation and Development (OECD) interest rates for export ships to developing countries. (Actual subsidies have exceeded these terms--see the case example of China Ocean Shipping.) Funding for FYs 1987-1989 is $258.6 million. The policy for domestic shipowners is to provide home credits under the same OECD terms that apply to export credits--i.e., maximum of 80 percent financing for 8½ years at 8 percent interest.

5. Subsidized Credit for China Ocean Shipping Co. (COSCO) Ships - In February 1987, the Federal Ministry of Economy in Bonn notified the OECD Secretariat of a subsidized loan for building two to four containerships at HDW shipyard for COSCO. The terms were extremely attractive: 0 percent down, 15 years to pay including a three-year grace period, at 3.75 percent interest. The grant element of the deal amounted to 34.67 percent.

6. Regional Aid - State and local governments in West Germany provide various kinds of financial aid to the shipyards within their jurisdictions. Thus, in August 1988, Schleswig-Holstein Economics Minister Franz Froschmaier remarked that over the past five years the state had pumped nearly DM 450 ($195.4 million) into shipbuilding, about half as subsidy grants and half as credit guarantees.

When a yard receives a subsidy grant, the state in which the yard is located is supposed to finance one-third of the subsidy. Ship repair activities, as well as new construction, may be subsidized. One source put the rate of subsidy for repair contracts at 28 percent before the EC Commission lowered its overall subsidy ceiling for 1989 to 26 percent. Limited credit guarantees can be provided by governments in the coastal states of Hamburg, Bremen, Niedersachsen, and Schleswig-Hostein, if credits cannot be secured by ship mortgages for the purchase of commercial ships. The governments may guarantee 80-100 percent of second mortgages for new buildings and/or conversions. Currently, all restructuring aid is granted only by the coastal states. As of Feb. 1987, these states may grant 30 percent investment aid for shipyard rationalization and reorganization. A yard may receive the maximum regional aid rate plus 5 percentage points if it is converting to other than shipbuilding activities. Shipyard closures may be aided at 50 percent of cost.

7. Equity Ownership - Federal and regional governments in West Germany have substantial shipyard holdings. For example, the state of Schleswig-Holstein owns 25.1 percent of HDW and the Salzgitter Group, a federally-owned steel mill which is a joint stock company, owns 74.9 percent. West German government officials sit on its board of directors. The state of Bremen owns 29 percent of Bremer Vulkan, and the city of Flensburg holds 15.5 percent of the ordinary capital of a medium-size yard.

8. Capital Infusions - For West German yards enjoying partial government ownership, equity capital has been made available through government channels. For example, during the first quarter of 1989, grants of over $41 million from the state of Schleswig-Holstein to HDW had already been approved by the EC Commission for modernization of the shipyard. In June 1988 an equity infusion of DM 112.35 ($60 million) from the federally owned steel mill of Salzgitter was approved. Earlier, HDW had received an equity infusion of DM 900 million ($352.4 million) from the government through Salzgitter. Government infusions of capital do not count against the 20 percent limit for subsidy-grants if the EC says the aid is for shipyard reorganization purposes.

9. R&D - The federal government of Germany contributes funds to research projects related to shipbuilding and offshore. Contributions in 1985 were approximately $13.2 million and in 1986, $16.2 million.

10. Tax Breaks - _"West German tax laws permit accelerated depreciation--and we take full advantage of it," Hans Jakob Kruse, Chairman of the West German shipping line Hapag-Lloyd AG, has said. Depreciation is allowed for up to 40 percent of advance payments before the ship is delivered. In addition to regular depreciation, special depreciation is allowed for German-flag ships amounting to 40 percent of acquisition costs for five years after delivery.

EXAMPLES OF SHIPBUILDING SUBSIDIES: JAPAN

1. Policy - Japan is generally credited with instigating the international shipbuilding subsidy race. As early as 1896, the government targeted shipbuilding for development. After World War II, the Japanese shipbuilding industry, identified as crucial to the country's economic development, was eligible for post-war assistance programs. Easy financing has been a major vehicle of assistance to Japanese shipyards since 1951, when loans with favorable credit terms were extended to domestic owners for oceangoing vessels through the government-assisted Japan Development Bank (JDB) and for export ships through the government-assisted Japanese Export-Import Bank.

For 20 years, credit through the JDB was also available for the construction and installation of shipbuilding facilities. Discontinued in 1971--except for regional development purposes--facilities aid was re-instituted in the mid-70's--this time to help reduce the country's enormous shipbuilding overcapacity that became obvious in the wake of the world-wide oil crisis.

2. Loans for Domestic Oceangoing Vessels - Since 1975, the Japanese through the JDB loan system has offered 60-70 percent loans for the purchase of ships, repayable at 5 percent interest, over a 10-year period, with a 3-year grace period. In early 1988, these terms were reserved for the construction of highly modernized ships. For the remaining balance, 20-40 percent financing is available at 5.5 percent interest from private Japanese banks. FY 1987 Budget for Ship Production Loans: ¥70 billion ($518.5 million).

3. Loans for Export Ships - By the mid-1960s, the Japanese Import-Export Bank was offering 80 percent ship financing over 8-10 years at 5.5 percent interest, denominated in U.S. dollars. This changed when Japan agreed to abide by the export financing terms set forth by the Organization of Economic Cooperation and Development's (OECD's) Understanding on Export Credits for Ships: 80 percent loan maximum, 8½ years from delivery to pay, at a minimum of 8 percent interest. Since the OECD interest ceiling is far above the Japanese interest rate, Japan has been lobbying intensively to get the OECD's interest rate minimum changed to whatever the commercial rate is in each individual country. (In Japan, that rate is 5½ percent.)
FY 1987 Budget for Ex-Im Bank Loans: ¥20 billion ($148 million).

4. Maritime Credit Corporation (MCC) Assistance for Coastal Vessels - Since 1959, Japanese operators of coastal ships have been able to take advantage of financial assistance from the MCC, a semigovernmental organization. The operator of a coastal vessel over 6,000 gross tons can become a joint owner of the ship with the MCC, paying the MCC a fee rather than the contract price. The MCC can also offer favorable terms for the building of coastal vessels.

5. Shipyard Rationalization Aid - Aid to reduce excess shipyard capacity includes: government purchases of the land and facilities of redundant shipyards, government loan guarantees for debts associated with scrapping or freezing redundant building berths or docks; government loans for about half of the cost of capital investments to shipbuilders to convert to different types of industries, and special tax benefits equivalent to 10 percent of the capital investments required for conversions. FY 1987

Budget for govt. purchases of redundant docks and land: Y30 billion ($222.2 million); FY 1987 Budget for govt. guarantees for yard facilities reductions: Y50 billion ($370.4 million).

6. Ship Scrapping Aid - The Japanese government instituted a subsidy program in FY 1978 to scrap primarily uneconomic oceangoing vessels, providing financial assistance at approximately $9-11 per grt. This was raised to approximately $16-18 per grt in 1983. From December 1978 to October 1985, about 3 million grt was scrapped under this program. In 1986, a law was passed to establish new aid for scrapping efforts. In addition, a government guarantee fund was set up to remove existing mortgages on ships to be scrapped and to pay retirement allowances for seafarers employed on these ships. The guarantees will be in effect until August 1991.

7. Research and Development Aid - Government involvement in ship-related R&D programs can come through a myriad of organizations attached to the Ministry of Transport (MOT), such as the Council for Transport Technology (CTT) and the Ship Research Institute. Ship Research Institute Funding, FY 1987: Y3.3 billion ($24.4 million); FY 1988: Y2.8 billion ($20.7 million). Examples of government funding for specific R&D projects: FY 1989: $4.3 million for fast cargo ship. FY 1988: $1.4 million for propellerless ship design.

EXAMPLES OF SHIPBUILDING SUBSIDIES: SOUTH KOREA

1. Government Financing of Shipyards - At a time when the world was experiencing vast shipbuilding overcapacity, the Korean government decided to develop shipbuilding as a major export business. With low labor rates and extensive government support, South Korean yards were able to sacrifice profits in order to build their markets. A major channel of support was the government-owned Korea Development Bank (KDB).

Today, South Korea's shipyards are suffering from their price undercutting practices and debts equivalent to about four times their equity capital, as labor and material costs continue to rise. The collective debt of South Korea's four major shipyards is 3.7 trillion won ($5 billion). These shipyards are Daewoo Shipbuilding & Heavy Machinery, owned by the Daewoo Group; Hyundai Heavy Industries (HHI), owned by the Hyundai conglomerate; Korea Shipbuilding and Engineering Company (KSEC); and Samsung Shipbuilding & Heavy Industry.

2. Government Bailout of Daewoo - Since late 1988, Daewoo and the government of President Roh Tae Woo have been negotiating on terms to bail out the troubled yard. The shipyard's debts stand at nearly $1.76 billion; last year's interest payments alone were $234 million. The government has offered a $630 million rescue package, which the yard was refusing as falling too short of what was needed. At the end of March 1989, however, it looked like Daewoo would probably accept the terms. The government's proposal would allow the yard to forego payment of interest and principal on $393 million in KDB loans for seven years, after which it would have 10 years to repay.

FOREIGN SHIPYARDS

Mr. **Murtha**. Let's go back to twice as many hours to build a ship. We talk about one shipyard versus all our industry.

What are we talking about there?

Mr. **Haller**. It depends on the advanced amount of technology in the shipyard.

Mr. **Murtha**. Put it into perspective.

Are you talking about one shipyard or all the shipyards in Germany or what are you talking about?

Mr. **Haller**. There is obviously a spectrum of yards. For instance, in Korea, that would not hold true because the number of personnel per ton per vessel to be constructed is far greater than it is in Japan.

Japan is highly automated, if you will, and that is where the differences come in, and in the ability to handle materials and to weld.

Mr. **Murtha**. Mr. Livingston?

Mr. **Livingston**. Thank you.

First of all, I saw a couple of hands raised over there for some additional comments.

Do we have anybody in the audience that would like to elaborate?

Mr. **Bossier**. I would like to comment on Mr. Creelman's comments about the 50 percent to answer what Congressman Young was asking.

I don't know which German shipyard you went to, but I would invite you to come to our shipyard at Avondale. I think you will see there technology equal to Japan, superior to what it is in Germany as it relates to manufacture of tankers, roll-on, roll-off ships and all types of commercial ships with the exception of Navy-type vessels.

The Japanese, who copied from us the modular construction technique, their efficiency, number of man-hours per ton, is better than anybody I have seen, including Germany.

Our shipyard, in New Orleans, you would see the exact duplication of what the Japanese do.

I think you will also find for similar or identical work the number of man-hours that we would use is not twice what the Germans or Japanese use; it is equal to it.

In the case of welding, it is better. I would invite you to come down and look at that so you could make a direct comparison between what you saw in Germany versus what you saw in New Orleans.

Mr. **Creelman**. I have spent a great deal of time at Avondale Shipyard, more in your quick repair yard than in the river yard, but I spent a good deal of time at the river yard.

Having been involved in the marine business on the Mississippi River for 30-odd years, I was almost pleased to have a job at Avondale.

I haven't been there in a couple of years, and I would like to go back.

My deputy was there last week and spent seven hours going through the yard looking it over in some detail, and I have spent a good deal of time talking with him about his observations.

We are certainly enthusiastic about U.S. yards. We are here to promote U.S. yards, and when we hear that U.S. yards are as productive as yards anywhere in the world, that is good news for us.

If that is the case, we have to get that word to American operators, so that U.S. yards build their ships rather than foreign yards.

NATIONAL SEALIFT POLICY

Mr. LIVINGSTON. Mr. Donnelly, Mr. Moore, what is the current status of the request by the OSD to the National Security Council to form an interagency group to address the sealift shortage?

Mr. DONNELLY. As far as I know, it is under consideration.

I mentioned earlier, I believe personally that it is probably being paced by the National Security Review of strategic and conventional force structure. That is, as you are probably aware, a fast-track review. That will pace our involvement in the other one.

Mr. LIVINGSTON. This year, there will be a decision?

Mr. DONNELLY. I don't have that information at this time, but I can get it for you. I can't imagine it taking very long.

[The information follows:]

The NSC requested comments regarding the National Sealift Policy from the relevant Government Departments on May 19, 1989. Comments are due back to the NSC by June 10, 1989. Completion of the interagency review will be paced by the extent and nature of the comments submitted to the NSC.

Mr. LIVINGSTON. Will it be part of the Administration's overall national security policy?

Mr. DONNELLY. I believe that is correct.

Mr. LIVINGSTON. Is the Department of the Navy participating in that review?

Mr. PYATT. Yes.

Mr. LIVINGSTON. If the Congress added funding to begin a program of procuring additional sealift ships, would the Department of the Navy feel inclined to support that program and add funding in follow-on budgets?

Mr. PYATT. We always execute the law of the land.

Mr. LIVINGSTON. Typical response.

Mr. MURTHA Are there any other questions? We will have other question for the record.

[CLERK'S NOTE.—Questions submitted by Mr. McDade and the answers thereto follow:]

MANUFACTURING OF SHIP SHAFTS

Question. In the past, the Navy has given a modest preference to domestic manufacturers of ship shafts for naval vessels and thus helped maintain the defense industrial base for these components. Do you anticipate any change in this policy?

Answer. No.

[CLERK'S NOTE.—End of questions submitted by Mr. McDade. Questions submitted for the record and the answers thereto follow:]

NAVY SHIPBUILDING PROCEDURES

Question. As the only current customer for most shipyards in the United States, the Navy is placed in an awkward situation. On the one hand you must be concerned with the continued viability of a shipbuilding industrial base. On the other hand you are under pressure to control the cost of Navy shipbuilding, primarily through competition.

What review procedures are in place to ensure that your concern for cost does not cause a further erosion of the industrial base?

Answer. Our goal is, and has been for some time, to have at least two sources for each shipbuilding program. We have succeeded in this in every shipbuilding program except nuclear-powered aircraft carriers, where quantities are too low to justify economically the development of a second source and in the Trident submarine program, where the potential second source has not yet been able to become cost competitive.

Our policy of two or more sources for each program has kept a number of shipyards in business and we expect that trend of industrial base enhancement to continue.

Question. Has the Navy proposed procurement of sealift ships in the fiscal year 1988, 1989, or 1990 budgets submitted to the Office of the Secretary of Defense and was that funding removed before the budgets came to the Congress?

Answer. The Navy has not proposed funding for procurement of new sealift ships in the FY 1988, 1989, or 1990 budgets submitted to the Secretary of Defense. At one time the Navy program included funds in those years for procurement of used ships for the Ready Reserve Force (RRF). All RRF funding is now the responsibility of the Department of Transportation.

Question. If the Congress added funding to begin a program of procuring sealift ships, would the Department of the Navy support the program and add funding in follow-on budgets?

Answer. The Navy always executes the law of the land.

UNITED STATES FLAG CARRIERS

Question. Mr. Creelman, a necessary component of the maritime industry is the operation of the United States flag carriers. If the operators do not exist, then the only likely customer for shipbuilders is the Defense Department. Does the Maritime Administration and the Department of Transportation feel there is a need for reform of the Operating-Differential Subsidy to ensure a competitive United States flag carrier service?

Answer. Yes. As presently structured, the Operating-Differential Subsidy program involves operating restrictions designed to regulate competition between U.S. operators and promote U.S. ship construction. These restrictions actually inhibit competitiveness in the international shipping arena, and there is need for reform. At the same time, in order to maintain an active commercial fleet adequate to meet military sealift needs, promotional support programs have to be sufficient to permit operators to compete effectively in foreign trade, and contracts have to be of sufficient duration so as to encourage ship replacement.

Question. Is there any mechanism within the Department of Transportation and the Maritime Administration to review laws and regulations that unnecessarily increase costs or reduce efficiency in the operating Merchant Marine?

Answer. Yes. Annually, the Maritime Administration and all agencies of the Department of Transportation review existing statutory authorities and regulations. One of the purposes of the review is to identify laws and regulations that unnecessarily increase costs or reduce efficiency in the U.S. merchant marine and, then, to propose legislative changes to Congress to eliminate such conditions or to propose regulatory changes to remove the agency-imposed barrier.

Question. Does the Maritime Administration support the concept of a "Procure and Charter" program where the Government would build militarily useful ships and charter the ships for commercial operations?

Answer. The Maritime Administration certainly is willing to review specific procure and charter proposals. Although several bills proposing "Build and Charter" programs have been considered in recent years, MARAD has found that in order for the ships to be commercially viable, the charter hire would have to be so low that very significant annual appropriations would be required to continue the program. In short, MARAD has no problem with the principle of "Build and Charter" programs, but has not yet found a proposal which successfully bridges the widening gap between Military usefulness and commercial viability.

FOREIGN SHIPYARD PRODUCTION

Question. What makes it possible for foreign shipyards to build ships with half the manhours, per ton of steel, compared to U.S. shipyards?

Answer. Attached is an outline which addresses what we at NASSCO see as the facts regarding U.S. versus foreign commercial ship construction productivity and the principal underlying causes for the difference in those productivities. These NASSCO conclusions are based on extensive interaction with foreign yards, with specific mention of Ishikawajima-Hariam Heavy Industries or IHI (Japan), Kawasaki (Japan), Wartsila (Finland) and Odense (Demark). NASSCO engaged IHI as a technology transfer consultant for a period of three years during which some fifty NASSCO engineers and production managers visited IHI's yards and IHI had some fifteen consultants working at different times in NASSCO. We also had NASSCO people working in Kawasaki's yard for six months and we currently are engaged with Odense in a joint new ship design program for Matson Steam Ship Company.

NASSCO
6/23/89

ISSUES UNDERLYING DIFFERENCES IN MANHOUR PRODUCTIVITY BETWEEN U.S. AND FOREIGN YARDS

I. It is exceedingly difficult to obtain accurate and reliable comparisons of manhour productivity.

  A. Each yard has different accounting treatment of direct versus indirect manhours.

  B. Each yard pursues different subcontracting philosophy (buying vs. making in-house).

    1) Those that subcontract heavily do not count those "purchased" hours in their own manhours per ton figures.

    2) The German yard discussed at the hearing is known to subcontract extensively.

II. There are yards, notably the Japanese, with the Korean and Scandinavian yards not too far behind that can build simple commercial ships for 1/2 the U.S. hours, all accounting issues equal.

  A. It is interesting to note that several of those highly productive Scandinavian yards have in the last 10 years closed down, due to their inability to compete, despite their excellent productivity.
  Why? - Government subsidies of various forms in other countries.

III. Why the productivity differences?

  A. Principal reason relates to volume of business over time and the benefits derived there from.

  B. High volume was initially (and in most cases, still today) generated by government subsidies of one form or another.

C. Productivity benefits of volume:

1) Enables sizable capital investment in facilities, most notability:

   a) Large scale mechanized steel fabrication and assembly facilities.
   b) Heavy lift cranes (e.g. 900 ton crane versus the 150 ton most often found in U.S. yards) - allows for steel blocks 6 times as large to be assembled in the efficient "shop stage" versus the costly "erection stage" and allows for advanced outfitting of machinery, equipment, piping and ventilation system to be installed throughout the much larger blocks in the "shop stage" versus the much more costly "on-board" stage after the ship is assembled.
      - Certain countries, Korea in particular, have had their facilities in essence directly subsidized by Korean government and World Bank (with U.S. money) financing and grants.

2. Allows continued development and refinement of production methodologies and techniques, planning methods, etc.

   a) A sizable portion of the differential in productivity is directly attributable to these continued methodology improvements.
   b) This technology is something that can be, and in some U.S. yards is already being, transferred from Japan to the U.S. However a yard needs volume to perfect and continue to tailor these methodologies.

3. Volume allows a yard to justify significant expenditures for training of trades people.

   a) Necessary to create a versatile and productive workforce.

4. Volume and growth allow a yard to attract and retain quality management personnel - both in Engineering and Production.

   a) The Japanese, with the government's support and commitment to the shipbuilding industry, in the '60's attracted the "best and the brightest" from college campuses.

b) At the same time, the U.S. industry was atrophying and little new talent was entering the industry to gradually replace the experienced but ageing World War II management generation.

5. Volume and a sizable backlog assure a continuity of workforce.

   a) U.S. yards with on-again, off-again surges of employment leads to workers "stretching the job" when they see layoffs looming, and necessitates continued new hiring and duplicating expense of training new people.

6. Volume and the above derived benefits which yield low cost production allow yards to specialize in specific classes of ships and market world wide.

   a) This concentration in only a few ship types and designs creates significant "learning curve" benefits. Ship runs of 20-30 ships of one design are not uncommon in Japanese yards.
   b) U.S. yards get very few opportunities for such "production runs". In the last 10 years, one 3 ship order was the best production run NASSCO achieved, and NASSCO has sold more commercial ships than any other U.S. yard in the last 15 years.
   c) Even more importantly, volume allows specialization between Navy ship builders and commercial ship builders.

      - No Japanese yard attempts to combine these highly disparate types of ship contracts (i.e., military specs, shock-grade construction, stringent Q.A. compared with highly cost-competitive commercial ship construction).
      - All American commercial shipbuilders are forced to build both Navy and commercial due to the small market available.

C. It is true that labor union trade classification and jurisdictional constraints have in the past made for lower productivity in U.S. yards.

1) The American worker typically produces with the same vigor as a Korean or Japanese for example, but the inability to apply that labor efficiently due to work rules has hampered productivity.

2) However, of late, Unions (NASSCO's unions are excellent examples) have recognized the need for increased labor productivity and have significantly relaxed and even eliminated those type of work rule constraints.

IV. The issue of actual time differentials for building a ship in foreign yards versus U.S. can be addressed as follows:

A. To a large extent time is a direct relation to the number of manhours involved. In fact as manhours increase, time increases more rapidly since in "on-board" work you are limited to the number of people who can work in the confined spaces at one time.

B. Material lead times are longer in the U.S. than foreign yards. U.S. yards do not have the volume business to create "preferred" supplier - shipyard relations to get priority shipment, build to order volume runs, etc.

V. Can U.S. yards match the foreign yards performance?

A. Definitely yes, but not without a stable, reliable volume over a 6 - 8 year period at a minimum.

B. With continued and assured volume over time, all the benefits derived from volume mentioned above can and will accrue to U.S. yards.

C. Volume cannot be created without some form of governmental support.

1) U.S. yards cannot create their own volume by underbidding foreign yards which:

a) Have already developed this productivity advantage.
b) Some of which also have a significant wage advantage.
c) Many of which continue to get significant direct or indirect subsidy to ensure a given share of the World Wide Market despite what competitive in roads the U.S. industry might make.

RHV/lh
(J/018)

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. MURTHA. Thank you very much gentlemen. The Committee will adjourn until 10:00 o'clock Tuesday.

WEDNESDAY, MAY 10, 1989.

AIRCRAFT PROCUREMENT, NAVY

WITNESSES

VICE ADM. ROBERT F. DUNN, U.S. NAVY, ASSISTANT CHIEF OF NAVAL OPERATIONS FOR AIR WARFARE

LT. GEN. CHARLES H. PITMAN, U.S. MARINE CORPS, AND DEPUTY CHIEF OF STAFF FOR AVIATION, MARINE CORPS

VICE ADM. JOSEPH B. WILKINSON, U.S. NAVY, COMMANDER, NAVAL AIR SYSTEMS COMMAND

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This afternoon's hearing will be on the budget request for Navy Aircraft Procurement. The fiscal year 1990 amended budget request of $8.8 billion for 140 aircraft represents a reduction of approximately $2.0 billion and 52 aircraft from the original budget proposed in January. The major changes include cancellation of V-22 and F-14D production, one year gaps in SH-60F and T-45 production, and a reduction in F/A-18 quantities.

We are pleased to welcome Vice Admiral Dunn, Lt. General Pitman, and Vice Admiral Wilkinson. General Pitman, we welcome you to your first appearance before the Committee and we will place your biographical sketch in the record.

We have got a lot of delicate issues when it comes to aircraft procurement and, of course, as you know, we have got tremendous strain in this budget. As a matter of fact, if you looked at today's paper, the General Accounting Office reports that we are $100 billion short in the defense budget. I have been saying since last November, Mr. McDade and I have been saying, that we are not going to have enough money to fund the programs at the appropriate level for the next couple of years if we don't raise some revenue and I still believe that. In one area, there is a small difference of opinion between the Office of Management and Budget and the Congressional Budget Office in their estimates of the outlays that are projected. It amounts to a difference of $3.8 billion. I have heard rumors that the way we are going to try to solve that is just change the pay date by one day. That doesn't solve our problem. That just puts it off to the future. The pay date change would amount to $2.8 billion and we would still have a billion dollar shortfall.

So your testimony will be important to us if you can find ways to free up some money. We want to see economic buys. I know you have given up a couple of programs. One in particular, we don't agree with, we think you are making a mistake with the V-22 program. I told the Secretary I am concerned that we have spent an awful lot of money, a couple billion dollars so far on the V-22, and it has only flown for four hours. We can spend more money and have at least some testing out of the aircraft before we cut it off.

Gentlemen, we will put your entire statements in the record and if you will summarize for us, we will go right to the questions. Admiral Dunn.

SUMMARY STATEMENT OF ADMIRAL DUNN

Admiral DUNN. I have submitted my entire statement for the record and I am pleased to be here to present the 1990-91 amended budget submit for Naval Aviation.

With me is Lieutenant General Chuck Pitman, Deputy Chief of Staff for Aviation in the Marine Corps; and Vice Admiral Joseph Wilkinson, the Commander of the Naval Air Systems Command.

As I submit this statement and make these few remarks, I have a mixture of pride and concern about Naval Aviation, pride in the way things are going today and concern about tomorrow.

The investment in the past years, the money Congress has voted, have produced a Navy which is capable and ready to do whatever it has to do. In fact, all of our deployable carriers, including CORAL SEA and MIDWAY, are now meeting the commitments and nine of the fourteen deployable carriers are at sea. Readiness is high, where it should be, whether I talk about ships, aircraft, or people.

You will recall that when called upon last April, Naval Aviation put Iranian warships and gunboats out of action and responded again in January of this year, when the attacking Libyan MIGs were downed. The personnel are the best I have seen in my naval service. Compensation has been adequate, they have had reasonable time at home, and we are keeping them in.

We have just completed the safest year in history. Our accident record for calendar year 1988 was 2.16 accidents per 100,000 hours, a new low. We lost 48 aircraft; that is 48 too many, but that, compared to 73 in 1987 and over 700 some the year I got my wings. So far in 1989, we are doing better and this morning our accident rate stood at 1.89.

The future, I am less optimistic. My first area of concern is force structure. In order to meet our requirements set forth by our allies and the commanders-in-chief and to maintain the operational tempo, we need 15 deployable aircraft carriers. Affordability, is going to keep us at 14 for the foreseeable future. That means we will be unable to meet some commitments which increases risk in our ability to respond. We will have to reduce commitments in order to protect our people. The Secretary agrees that we don't want to take our people away from home more than is necessary. We will do most of the things we have to do with these 14 carriers despite the proliferation of sophisticated weapons with longer ranges and the latest technology found, not only in the Soviet Union, but in Third World states.

At the same time, there is decreasing access to overseas bases and more limits on overflight rights. We will continue to be dependent on international trade for economic vitality in the free world.

The only military force that can fill this void and meet the increasing worldwide demand for deterrence and warfighting, should deterrence fail, is the mobile, flexible and capable carrier battlegroup which is Naval Aviation at sea. Naval Aviation has been the force of choice and the most frequently called because of its speed, flexibility, and global reach. It remains the most formidable foe any adversary can expect to meet. If keeping enough carriers to meet today's commitments is smart, then keeping enough to meet tomorrow's threat is essential.

The second concern I have is the proper mix. While I fully support the President's budget, I am concerned about having the right mix of airplanes, weapon systems and weapons to meet our long-range requirements at sea.

Naval Aviation is in a transition period ready to reap the enormous benefits of earlier research and development investments. We consciously terminated several programs, the A-6, the P-3, the F-14A, and the AH-1, to allow for transition to new technology. Naval Aviation requires an orderly modernization to these technologies. The A-12, for example, which is a Stealth aircraft, will replace the long-range medium attack aircraft, the A-6. The F-14D is necessary to achieve and maintain air dominance until a follow-on fighter is developed. The Advanced Tactical Support Aircraft, will have the advanced tactical systems to satisfy both the battle management, surveillance and multi-dimensional warfare missions currently accomplished by four aircraft, the E-2, the S-3, the EA-3, and the EA-6. The P-7, formerly RAACA, a land-based maritime patrol aircraft will meet the requirements of increased speed, range, payload and fill the force structure as older land-based air assets are retired. We need the SH-60F. This is a carrier innerzone antisubmarine warfare helo which will replace the aging SH-3.

We need over-the-horizon medium lift assault capability. We need air-to-surface weapons which allow greater stand-off capability and electronic warfare systems to destroy enemy systems and improve our survivability. We must have good training, a viable training program. Flying hours will produce not only readiness, but highly motivated and experienced people. We must also maintain an adequate pilot training rate to ensure the future of Naval Aviation and we have to preserve the framework for future growth. If we do all these things, we can be ready when called upon with an effective and flexible response. In summary, Naval Aviation is meeting its commitments today, but the world is changing. The budget reductions present challenges for all of us. I am concerned that we have the right mix of aircraft, weapons, and ships for the fleet in the future.

Lieutenant General Pitman has a few things he would like to add.

[The statement of Admiral Dunn follows:]

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE APPROPRIATIONS COMMITTEE

STATEMENT OF

VICE ADMIRAL ROBERT F. DUNN

(AIR WARFARE)

BEFORE THE

SUBCOMMITTEE ON DEFENSE

OF THE

HOUSE APPROPRIATIONS COMMITTEE

ON

NAVAL AIRCRAFT PROCUREMENT

10 MAY 1989

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE APPROPRIATIONS COMMITTEE

VICE ADMIRAL ROBERT F. DUNN

Assistant Chief of Naval Operations (Air Warfare)

Vice Admiral Robert Francis Dunn serves as the principal advisor to the Chief of Naval Operations for all matters involving Naval Aviation.

He commanded the aircraft carrier USS SARATOGA (CV 60) for two years and Command ship USS MOUNT WHITNEY (LCC 20) for 18 months. His first sea duty was in the destroyer USS NICHOLAS (DDE 449) during the Korean War. After flight training, Vice Admiral Dunn flew A-1 Skyraiders and A-4 Skyhawks from attack carriers operating in both the Atlantic and Pacific. In 1967, he commanded Attack Squadron 146, flying combat missions from aircraft carriers in the Gulf of Tonkin. Later, he commanded Attack Carrier Air Wing Seven in the Mediterranean and Carrier Group Eight in the Atlantic.

Shore tours included the Naval Postgraduate School where he earned a Master of Science degree, and the United Kingdom Joint Services Staff College in England. He was a flight instructor in Pensacola, Florida and a Polaris Missile Special Projects Office Representative in Sacramento, California. He has also been Commander, Naval Safety Center; Commander, Naval Military Personnel Command; Chief of Naval Reserve; and Commander, Naval Air Force, U.S. Atlantic Fleet. He assumed his present position as Assistant Chief of Naval Operations (Air Warfare) on 15 January 1987.

Vice Admiral Dunn has qualified in a variety of aircraft, including single and multi-engine, jet, prop and helicopter. Since October 1, 1988, he has been the Navy's Gray Eagle.

His military awards include two Silver Star medals and two Distinguished Flying Crosses for action in Southeast Asia. He also holds the Distinguished Service Medal and four Legions of Merit.

A native of Chicago, Illinois, Vice Admiral Dunn is a 1951 graduate of the U.S. Naval Academy.

Report by VADM Robert F. Dunn
Assistant Chief of Naval Operations (Air Warfare)
on Naval Aviation Procurement for the Fiscal Years 1990 and 1991 Amended Budget Submission (ABS)

INTRODUCTION

Mr. Chairman and distinguished members of the subcommittee, I appreciate your invitation to present the Navy's plans for aircraft procurement in fiscal years 1990 and 1991 and to update you on other significant programs which influence Navy and Marine Corps aviation's contribution to the current military strategy of the United States.

BUDGET OVERVIEW

As we enter the last decade of the 20th Century, Naval Aviation is embarking upon a critically essential modernization program, a program that is absolutely necessary in order that the United States Navy meets its global national security commitments of the 21st Century. Several programs have been terminated in earlier years (F-14A, EA-6B, A-6, AH-1, and P-3) in anticipation of urgently needed replacement programs on the near horizon. These new capabilities include the A-12, T-45 Training System, the P-7A, formerly known as Long-Range Air ASW Capability Aircraft (LRAACA), the F-14D, and the EA-6B ADVCAP.

The Aircraft Procurement, Navy (APN) request in the FY 1990 ABS is $8,826 million, a decrease of $488 million from the level appropriated in FY 1989. The FY 1991 ABS request is $9,518 million, an increase of $692 million over FY 1990. The requested funds in FY 1990 will procure a total of 140 aircraft, including 29 rotary wing, 5 training aircraft, and 106 fixed wing tactical aircraft. Because of overall budget constraints and affordability, modernization goals will be achieved at a slower rate than previously anticipated. Long-standing Congressional concerns on naval aircraft shortfalls and increasing average age should be alleviated in the late 1990s as a larger number of new aircraft begin to replace those whose service life is expended.

NAVAL AVIATION AND NATIONAL DEFENSE

As the leader of the free world, the United States is deeply and permanently committed to sea power for economic vitality and political stability. Globally, naval forces are the most visible reminder to our allies, friends and potential aggressors, of the United States' resolve to provide an umbrella of stability under which free world political and economic activity can flourish. The mobile and flexible forces of the Navy and Marine Corps contribute to global stability through their ability to confront potential aggressors and trouble makers with a broad range of military options--broad in geographic scope, rapid response time, and measured intensity. Our Carrier Battle Groups will continue to be the most respected, responsive, flexible and best prepared force, capable of reacting immediately, on a global basis, across the entire spectrum of conflict. The nation's diminishing access to foreign bases and overflight rights has the potential to limit forward basing of U. S. military forces. Our nation will increasingly rely upon mobile naval forces to fill this vacuum in deterring aggression and providing for regional stability. Our recent experience in the Persian Gulf serves only to reinforce this argument.

Carrier Battle Groups operate daily as they would in war--forward, near our allies, and where potential adversaries must be deterred. They operate throughout the world, with forces of our sister services and allies in maintaining necessary levels of readiness and training, not only to deter war but to fight and win should deterrence fail. Naval Aviation exercises in the environment and geographical areas in which confrontation would likely occur. The Carrier Battle Groups with their long range, modern, air arms can deploy for as long as necessary and fight at whatever level of conflict the situation demands. Naval forces can affect world events quickly and decisively, and once political or military objectives are realized, rapidly withdraw without leaving a ripple in the water.

Carrier-based aircraft, in conjunction with shore-based maritime patrol aircraft, add an unequaled dimension to sea power. Sea power is mobile and flexible with global reach. Air power adds speed, altitude, and additional reach in a four-dimensional (surface, subsurface, land, air) warfighting environment. Carrier aviation can conduct offensive operations against targets ashore, afloat, or under the sea with the great advantage of rapid revisit capability. The ability of carrier-based aviation to employ the vast array of sensors and weapons required for successful antisubmarine and electronic warfare makes for an unmatched force multiplier. This concentrated offensive air power is an effective and highly visible deterrent which can freely operate independent of foreign shore bases, political constraints and the sovereign claims of other nations.

Unmanned air vehicles, cruise missiles, and other systems will develop as complements to air power at sea, but none will take the place of manned aircraft when the chips are down. When it becomes necessary to wrest and maintain air dominance over a battle space, when it becomes necessary to deliver heavy volumes of ordnance on a repetitive basis, when it becomes necessary to combat high speed, multi-threat and versatile undersea forces, and when there is a need for rapid and flexible logistics, there is and will be no substitute for air at sea.

For the present, our technological edge, better training, tactical initiatives and innovations, combined with the exceptional quality of our people, have given us the advantage. However, because our potential adversaries, Soviet Union and Third World alike, are rapidly acquiring improved weapon systems in every category, there is enormous justification for Naval Aviation to modernize at an accelerated rate.

NAVAL AVIATION PRIORITIES/ISSUES

The FY 1990/91 budget request will keep strong and flexible Naval Aviation forces on-station and fully ready to meet any commitment. Our top priorities are people, readiness and safety, a balanced force structure, and modernization.

People Programs. Maintaining adequate levels of motivated and well-trained people to man Naval Aviation is my highest priority. They are, of course, the heart of our capability, now and in the future. The American sailor and junior officers are the ultimate force multiplier over any potential adversary, but only well-trained and motivated personnel can maximize the use of the sophisticated weapons needed to wage modern warfare. We must continue to preserve the pilot training rate, the flying hour program, and technical training programs in order to meet commitments and retain our best people.

Our FY 1990/91 budget request represents an overall aviation manpower reduction, primarily related to force structure cuts. In fact, ship and squadron manpower has been reduced from 92 to the 90 percent level, with zero growth in shore-based billets. As a result, previously programmed growth was not attained. Fleet support capabilities ashore will be reduced along with the technical leadership and expertise necessary to support complex fleet weapon systems. Additionally, movement toward a better balance of sea duty tours and shore duty assignments has been delayed. If further manpower reductions are mandated, our capacity to bring new weapon systems on line effectively and to operate safely those presently assigned will be in question.

In an environment where manpower is stretched thin, retention has historically suffered. Retention of experienced officers and petty officers is intrinsic to readiness, economy and safety. Experienced personnel simply maintain and operate complex weapon systems more effectively, resulting in improved readiness and safety reflected by a lowered aircraft accident rate. Retention reduces training cost. In the case of pilots, these costs are dramatic; it costs approximately $1.25 million to train a fleet-ready aviator.

Based on initial returns, the aviation continuation pay (ACP) approved by Congress for FY 1989 appears to be successful; however it is too early to assess its impact on all aviation communities and designators. Additional incentives may be required for the nation to retain the proper number of pilots in military service. Growth in high tech industry means our well-trained officers and petty officers are highly sought after in the civilian sector. It is absolutely necessary that military salaries and benefits keep pace.

Readiness. Readiness must be maintained for maximum warfighting capability. Naval Aviation, the essential component of American sea power, must remain capable of keeping conflicts small (geographic, time and intensity) to avoid escalation. Today, forces on station are ready. This was demonstrated when Iranian warships and gunboats were put out of action as recently as April 1988 and when two attacking Libyan MIGs were downed in January 1989.

To ensure our crews remain ready, the President's budget will keep flying hours at the minimum standards required for safety and readiness. It will provide required training for aircrews at rates needed to maintain squadron readiness. It will provide for shore-based support infrastructure which protects the material readiness of carriers and aircraft while emphasizing safety, reliability, and maintainability in operations. Further deterioration in the infrastructure, though, will adversely affect readiness--our ability to respond on short notice wherever and whenever required.

Balanced Forces. We must continue to provide a balanced Naval Aviation force structure which is optimized and modernized across all mission areas. The current force structure of 13 active and 2 reserve carrier airwings, three active and one reserve Marine Corps airwings, and the requisite number of maritime patrol squadrons and ASW helicopters provides that balance.

Modernization. Naval Aviation's modernization plan is both evolutionary (F-14D, EA-6B, E-2C) and revolutionary (A-12), applying the latest technology to achieve superiority and survivability against sophisticated threats. We will capitalize on what Naval Aviation does best while integrating the strengths of sister services and allies. We will increasingly develop standoff weapons and electronic warfare systems as force multipliers. Through commonality and modular design Naval Aviation will continue to consolidate the number of different aircraft and weapon types to save manpower and support costs.

Safety. Naval Aviation has just completed the safest year in history--by a landslide! The CY 1988 rate was 2.16 mishaps per 100,000 flight hours with 48 Class A mishaps. This betters last year's record rate of 3.25 and 74 mishaps. Thanks to inspired leadership and proactive awareness at the operator level, the Navy has 26 more aircraft to fly this year than last. Our success is due in no small part to the cumulative effects of adequate flight hours and spare part funding in past years which facilitated aircrew training. But we are not content to rest at this low mishap rate. As good as was 1988, we still had 48 too many accidents.

FORCE MODERNIZATION AND STRUCTURE

It is essential to gain maximum benefit from each budget dollar; therefore, improvements and added capability are limited to only those necessary to improve safety, meet operational requirements, extend service life, enhance survivability, and improve maintainability through reduced costs and lower manpower requirements. Maximum competition, fixed price contracts, block upgrades, optimum use of acquisition streamlining, maximum standardization and commonality, conversion-in-lieu of procurement (CILOP), and weapon system improvement programs (WSIP) are all being used to ensure limited resources are used wisely. We are participating, whenever possible, in joint-service development programs. For example, Navy is firmly committed to joint development of the NATF.

Aircraft Carriers. The decision not to add another deployable carrier at this time keeps their level at 14. This force level can support our peacetime deployment commitment as is the case today. As CVNs begin refueling periods, adjustments will be made to the carrier deployment schedule to maintain existing turnaround ratios and personnel tempo.

USS CORAL SEA is completing pre-deployment work-ups in preparation for a mid-1989 scheduled deployment to meet national treaty commitments. CORAL SEA remains fully mission capable as she approaches her revised projected decommissioning in early FY 1990.

USS MIDWAY continues to operate in the Western Pacific, fulfilling the nation's commitments to our Western allies and assisting in our necessary Indian Ocean presence.

The nuclear refueling and complex overhaul of USS ENTERPRISE, which begins in 1991, is a smart business decision which will ensure a first-line nuclear aircraft carrier (CVN) for an additional 20 years at a fraction of the cost for new construction.

Carrier Airwings. The Navy's near time complement of 13 active and two reserve airwings was planned knowing that one aircraft carrier would be in SLEP, one would be in a refueling overhaul, and one is generally in a complex overhaul.

Strike Aircraft. The A-12 is a revolutionary program which will improve our all-weather attack capability by an order of magnitude. Our top warfighting priority, it will incorporate significant stealth characteristics and become the primary striking force of the Carrier Battle Groups. This vital tactical platform will be able to penetrate even the most heavily defended enemy areas to reach its targets. The Air Force has joined us in the development of the A-12 and is defining an A-12 variant for their use.

Until all medium attack squadrons are A-12 equipped, we will continue to operate the long range, all-weather, A-6 Intruder. As an interim measure to ensure its survivability in the near term, we are modifying it under the System/Weapon Integration Program (SWIP). No SWIP modification kits are budgeted in either FY 1990 or FY 1991, however, further upgrades are required during the remaining A-6 lifetime. This will permit a greater stand-off capability with HARM, HARPOON, Infrared and Laser MAVERICKS, SKIPPER and SLAM (HARPOON variant), and additional reliability/maintainability upgrades.

The F/A-18 strike fighter with its versatility, reliability, and survivability will be the "workhorse" of carrier air wings well into the 21st Century. Upgrades to the radar, engines, weapon system, and "Under the Weather" capability will further expand the mission potential. The FY 1990 request is for 66 aircraft, the beginning of a multi-year contract.

The AV-8B Harrier program has been restructured over the past several years to represent a solid balance between fiscal resources and combat capability. At this time, we are short of our original requirement of 323 aircraft but this can be revisited at the end of our current multi-year contract. Operational experience with the AV-8B has shown the airframe to be reliable, maintainable, and capable of substantial growth. Night attack capability, upgraded engine, and perhaps a radar in the future will allow the AV-8B to expand its missions over a broad spectrum of operational and threat scenarios.

Amphibious Forces. The FY 1990/91 ABS terminates the V-22 Osprey program and requests a mix of substitute helicopters to perform the Navy and Marine Corps' missions. The MV-22 was a planned replacement for a number of aging CH-46/CH-53A/D medium lift helicopters. In view of the V-22 cancellation, the Department has proposed a mix of CH-60 and H-53 helicopters to satisfy the over-the-horizon medium lift assault requirements for the Marine Corps.

ASW Aircraft. Naval Aviation is the key element in antisubmarine warfare (ASW), the Navy's number one warfighting priority and a cornerstone of naval strategy. In any confrontation with the Soviet Union, their numerical superiority in submarines will require use of air ASW as a force multiplier. That multiplier is Naval Aviation--in the form of sea-based antisubmarine aircraft and land-based maritime patrol aircraft, specifically designed for the primary mission of dominating enemy submarine forces. ASW aircraft are the key to effective, coordinated ASW which links surface, subsurface and air elements through an increasingly sophisticated communications network. ASW aircraft are highly maneuverable, and quickly redeployable weapon platforms possessing the capability of simultaneous track and attack of multiple targets. ASW aircraft, such as the P-3C, S-3B, and SH-60B/F, can quickly reposition sensors and respond rapidly to long range ASW cues for either successful prosecution or false target elimination. In addition, aircraft can provide the frequently decisive element of battle--surprise. Our procurement plan, which is in consonance with the ASW Master Plan, is bound by affordability.

The P-7A, equipped with the Update IV avionics system, is the planned replacement for the older P-3As/Bs. In a cost cutting effort, we will early retire 73 of these older P-3A/B aircraft and temporarily reduce Primary Aircraft Authorization (PAA) in active and reserve P-3 squadrons. Our MPA force will operate with a reduced number of P-3 aircraft until the P-7A comes on line in sufficient numbers in the late 1990s. As we intend with all modernization efforts, the P-7A will be less manpower intensive and more economical to operate. The P-7A will provide significantly increased payload, greater range, and higher transit speed. Advance procurement funds are requested for FY 1991 with procurement to begin in FY 1992. We are also pressing ahead in P-3C modifications by requesting needed funding to meet an increasingly sophisticated submarine threat; however, affordability has reduced Update III kit procurement and delayed program completion until 1994.

We are continuing to procure modernization kits for the S-3B WSIP. The excellent operational effectiveness which the S-3B aircraft has recently demonstrated during its initial at-sea operations clearly points to the benefits of a successful modification program. With the important role the aircraft now plays in the AAW and ASUW roles in addition to its primary mission of ASW, the S-3B has become a true force multiplier. Unfortunately, affordability has reduced the rate of S-3B kit procurement and delayed program completion until 1996.

The FY 1990/91 ABS defers the procurement of 18 SH-60F ASW helicopters to allow time to correct deficiencies discovered during follow-on test and evaluation. Timely correction of these deficiencies should result in a procurement profile which allows required replacement of the SH-3s as they reach the end of their service life. The SH-60B program is on track and performing well. Full funding in FY 1990 for six SH-60Bs will help fill inventory requirements on the LAMPS Mark III ships.

AIR DOMINANCE

Naval Aviation is working in conjunction with other warfare sponsors in developing an Anti-Air Warfare (AAW) Master Plan that will provide a fleet-wide assessment of force AAW capabilities vis-a-vis requirements into the early 21st Century. The purpose is to identify methods of making existing systems work best in coordinated operations and to outline RDT&E and procurement priorities for the next several years. In view of the Soviet's Naval Aviation developments at sea, the AAW Master Plan will provide a roadmap to meet the increasing threat.

The F-14D is key to Carrier Battle Groups achieving air dominance. Mounting new high performance engines, a state-of-the-art digital radar, and new digital avionics, it will pace the threat and provide continued outer air battle capability to the Carrier Battle Group. Navy anticipated achieving an all F-14D force by the year 2000 through a strategy including both new procurement and remanufacturing the F-14A to the F-14D configuration. The FY 1990 ABS terminates the new production program but retains the remanufacture program. We anticipate a one-year delay in F-14D fleet introduction.

The Navy is working closely with the Air Force and its contractors in conceptualizing a carrier-based version of the Advanced Tactical Fighter (ATF) as a follow-on to the F-14D near the turn of the century. The Navy is fully committed to this development program.

The F/A-18 continues to fulfill its multimission requirements superbly, including fighter (self) escort, short to mid-range intercept, and F-14 augmentation in the outer air battle. The capability to perform strike and fighter missions allows the Carrier Battle Group Commander unparalleled flexibility in configuring the F/A-18 as battle situations change. The digital weapon system of the F/A-18C yields greater combat effectiveness by including the capability for AMRAAM and ASPJ. Development funding requested for the radar upgrade is absolutely essential.

The E-2C weapons system update program continues to be highly successful in meeting the evolving threat. The request for four E-2Cs in FY 1990 will continue to satisfy fleet inventory requirements; however, affordability has forced a one-year slip in the update development program (UDP II). Wing cracks continue to impact readiness. Twenty-six of the 101 E-2C aircraft in inventory are grounded for wing cracks. Full modification funding (APN-5), as requested, will keep the Navy's "get well" plan on track.

ELECTRONIC WARFARE

As the enemy gains electronic sophistication, so must the electronic combat systems supporting tactical air forces and carrier battle groups. The EA-6B remains the primary platform for suppression and degradation of enemy defense systems by tactical jamming and counter-target jamming support for battle groups and

Marine Corps forces. Funding in FY 1988 and 1989 for 12 aircraft each year will satisfy near-term inventory requirements. Because of affordability, additional EA-6B procurement has been terminated. This will necessitate careful management of our assets until arrival of the Advanced Tactical Surveillance (ATS) System. As a warfighting requirement, the EA-6B will be remanufactured into the Advanced Capability (ADVCAP) configuration starting in FY 1991. We are also requesting development funds for the Advanced Signal Receiver (ASR) as a top priority.

A top priority of battle group commanders is the accelerated modification of 16 ES-3 electronic surveillance aircraft from the existing S-3 inventory. The program continues to progress at an accelerated pace to replace the few remaining EA-3B aircraft. Any delays in this program will adversely impact fleet capability and readiness. ES-3 squadrons are scheduled to stand up in Guam and Rota Spain in 1991.

Advanced Tactical Surveillance (ATS). FY 1990 includes our first request for ATS development funds. ATS is being developed to perform the battle management, surveillance, and multi-dimensional warfare missions currently accomplished by the E-2C, S-3A/B, EA-3B/ES-3B, and EA-6B. ATS is envisioned to be a common airframe/engine developed from a current derivative air vehicle, though the final decision has not been made on what platform will incorporate it. It will encompass a common baseline avionics architecture which allows the integration and exploitation of a multi-spectrum sensor suite, common signal/data processing hardware and software, standard DOD data bus structure and reconfigurable controls and displays. The baseline ATS will require, as a minimum, two major variants due to mission-specific sensors and weapons requirements (Battle Management/AEW and Battle Management/ASW), with common netting, C3, EW, and SIGINT capabilities.

Training. As Naval Aviation fields the most sophisticated and capable weapon systems in history, training for both the operator and maintainer becomes even more important. Training is a "force multiplier" which gives us the edge in readiness for combat. Training includes flight hours, classrooms, training support equipment, facilities and targets, adversary aircraft, simulators, training devices and adequate Temporary Additional Duty (TAD) funding to accomplish available training. Technology now allows simulators which virtually replicate real world threats and our own weapon system capabilities. We are on the threshold of true mission rehearsal and a deployable trainer is in the near future. The initial training in the operation and maintenance of complex weapon systems is best and most economically conducted first in simulators. It is absolutely essential that training devices and simulators be funded parallel with new aircraft systems and modifications and they arrive before the delivery of the first aircraft or modification, not after.

The T-45 Training System consists of the T-45A "Goshawk" jet trainer, state-of-the-art visual and instrument simulators, computer based training integration system (TIS), computer aided instructional devices, academics, courseware, and contractor logistics and maintenance support.

The first two flight test aircraft were accepted by the Navy in 1988 and were used for initial operational and developmental flight testing during November 1988. During this initial flight testing, deficiencies were discovered in lateral and longitudinal stability, engine response and total engine thrust, speed brake operation, and several areas of human factors. All deficiencies are correctable, and the Navy is working closely with the prime contractor (Douglas Aircraft) to resolve these problems in the most timely manner possible. A slip in initial operational capability (IOC) of two to five months from the original IOC of September 1990 is likely, but no major impact on the ability to meet pilot training requirements is projected. FY 1990 procurement of the T-45 has been deferred until deficiencies are corrected.

Aircraft Modifications. The FY 1990 request is significantly scaled back to $601 million from the $932 million appropriated in FY 1989. This reduction will improve the balance between modification kit procurement (APN-5) and installation funding in the O&M,N request. However, modernization reflected in the APN-5 account is at the absolute minimum acceptable level.

AVIATION SUPPORT EQUIPMENT

Our request for support equipment in FY 1990/91 is essentially level with the amount appropriated last year. The appropriations provided from FY 1984 through FY 1988 have been dedicated to fully outfitting 15 deployable carriers. Full funding as requested in FY 1990 is needed to provide initial Consolidated Automated Support System (CASS) production, CV replenishments, required support equipment for aircraft procurement, and the replacement of obsolete equipment.

CASS is an automatic testing system for Navy weapon system electronics support. It consists of standard hardware and computer software to which functional modules are added to meet different testing requirements, such as communications, radar, and electronic warfare. Once designed, the modules can be quickly and inexpensively produced and replaced. Maintaining CASS development on schedule is essential for the support of the A-12 and all future aircraft and new common avionic systems. CASS offers significant savings in manpower, training, support equipment, operating cost, space, and combat readiness.

READINESS AND SUSTAINABILITY

The FY 1990/91 budget is balanced to sustain the high state of day-to-day readiness required by Naval Aviation tactical forces through prudent investments in training, personnel, and material support programs.

Flying Hours - An Imperative for Fleet Readiness. The standard readiness indicator for the flying hour program is the primary mission readiness (PMR) attained by warfighting units (TACAIR/ASW). For each type aircraft, a pilot needs to be trained in various mission skills--skills which must be continually renewed for proficiency. Through experience, we have determined the average number of hours per month required to achieve and maintain these skills. Our budget development process is designed to identify the minimum funding levels necessary to provide the flight hours to maintain crew readiness. The FY 1990 budget request is sufficient for us to achieve 85 percent of that level through flying and to gain an additional two percent PMR through the use of simulators. The planned 87 percent PMR is short of our peacetime goal of 88 percent. We know that further reductions below this goal will result in a loss of readiness, a reduction in safety, and a decline in pilot retention.

Air wings preparing for deployment and those already deployed are accorded priority for flight time while those returning receive less. The average TACAIR/ASW crew flies 25 hours per month. We believe this reflects the absolute minimum for retention of critical combat flying skills. However, it must be emphasized that the opportunity to fly is critical in the retention of aviators. Most aviators would say 30 or 40 hours per month in a Navy tactical aircraft would satisfy their flight desires and provide an incentive to stay in the Navy despite deployments and other hardships. Individual averages today are far below that level.

Airspace. Another separate, but related, issue is the availability of adequate Special Use Airspace to maintain Naval Aviation readiness. Special Use Airspace is essential for attaining acceptable flight crew proficiency across the full spectrum of warfare, for developing and evaluating airborne tactics, and for testing and evaluating advanced technology aircraft and weapon systems. Low observable and terrain hugging aircraft, high-speed missiles, and over-the-horizon standoff weapon systems and tactics are but a few examples of added capabilities that increase airspace and sea area requirements.

Increased emphasis on joint operations place additional demands on airspace size and frequency of use. Available airspace, though, is under increasing pressure from commercial air, economic, political and environmental sources. Each source is represented by special interest groups which compete with military interests. The Navy is faced with the dilemma of requiring increased airspace to support emerging capabilities, while current trends are reducing available areas and restricting their use. This places readiness at risk. We are working hard at solving the myriad of problems attendant, but I would much appreciate the Members' understanding of our dilemma.

Aircraft Material Readiness. While many factors, including personnel, training, general logistics support, spare parts, and depot rework funding, affect material readiness, the primary indicator used to measure aircraft material readiness is the

Mission Capable (MC) rate. The MC rate goal is 73 percent, which was achieved in FY 1988. Funding in areas affecting MC rate decreases from FY 1987 to FY 1991. The result is expected to be a decline of about one percent per year in the MC rate from FY 1988 to FY 1991.

Aviation Spares. The FY 1990/91 aviation spares account has been pared to bare minimum requirements and represents our best efforts at a balanced approach within the limits of affordability. We plan to procure 100 percent of engine spare parts requirements which directly affect Mission Capable rates and 70 percent of an avionics system's repair parts which has direct affect on Full Mission Capable rates but does not affect Mission Capable Rates. As in recent years, reduced funding for spares will require intensified management efforts that include increased cannibalizations, additional "crossdecking" of assets, off-ship requisitions, and increases in maintenance man hours.

Shore Station Support. Naval air stations provide the environment critical to maintaining the readiness of Naval Aviation. Air stations, operated and maintained by a mixed military/civilian and contractor work force, must be adequately funded to provide a sufficient level of support for aircraft operations and maintenance. We continue to seek innovative ways to minimize shore station costs through functional consolidation, efficiency reviews and Circular A-76 studies. The current budget allocates the bare minimum for air station operations. Further budget reductions to Base Operations Support funds would have a dramatic impact on our ability to maintain air station operations at safe and efficient rates, or it would require additional base closures.

WEAPONS DEVELOPMENT/PROCUREMENT

Power projection is carrying the fight to the enemy and putting ordnance on target. Sufficient quantities of practice ordnance are essential to accomplishment of that objective. Skills must be maintained on a continuous basis during peacetime. The CINCs' number one concern is the shortage of weapons required to carry out their missions. Although increased weapons procurement in recent years has all but eliminated the requirement to cross-deck weapons on deploying combatants, we still have not filled the resupply pipeline and forward prepositioned inventories of several of the newer, more sophisticated weapons like HARM, IIR MAVERICK, PHOENIX, and HARPOON. However, we believe the quantities reflected in the FYDP are an acceptable risk in this funding environment.

Several weapons are worthy of special mention because of their contribution to warfighting enhancements. We are proceeding with the development of the AIM-9R as a top priority. It features an improved capability in clutter and a significant counter - countermeasure capability. We are continuing the development of AAAM, AMRAAM, Standoff Land Attack Missile (SLAM) and the Advanced

Interdiction Weapon System (AIWS). Our goal is to "neck down" the different types of weapons in the fleet.

The increased Congressional funding of $35.0 million in FY 1989 for sonobuoys will help meet inventory requirements and future consumption requirements for ASW training while sustaining war reserves. The FY 1990/91 request has been reduced to the lowest prudent level. Even though expenditure rates may exceed FY 1990 procurement quantities, accumulated inventories will support the required ASW operational tempo in the near term.

The reduction in air-launched training ordnance mandated by fiscal constraints is somewhat offset by the increased request for MK-82 General Purpose Bombs which will permit continued use of live training ordnance. However, this level of funding is still at the absolute minimum to avoid erosion of war reserves and to maintain an acceptable level of ordnance delivery capability. The most optimistic future outlook rests on the early IOC (FY 1995) of the Advance Bomb Family (ABF).

SUMMARY

Sea power is essential to the nation and to national objectives. Naval Aviation adds dimensions to sea power that are not available from other means. Naval aircraft provide reach, flexibility, versatility, speed, and concentrated firepower. They are quickly reloadable. The FY 1990/91 ABS emphasizes readiness, retention of experienced manpower, and force modernization which will allow Naval Aviation to continue meeting national commitments.

People must always remain our top priority. Our people ask for very little. They willingly deploy throughout the world, enduring six-month separations from their families and friends on a routine basis. They do so from a deep sense of commitment and love of country. We must return their commitment and devotion to duty with adequate pay and benefits, providing a secure financial environment for their families. This is a key element in protecting our national investment in a ready Navy.

We must likewise provide sufficient funds to maintain a balanced naval capability centered on 14 deployable Carrier Battle Groups. Our Carrier Battle Groups are the centerpiece of our naval capability because they represent the most effective and complete way to establish and maintain control of the seas. There is no substitute for them in peacetime or in war. In order to pace the emerging threat in the coming decade, we must introduce on schedule the technologies represented in new weapon systems, such as the A-12.

Naval Aviation makes extraordinary contributions to national security. The continued support of Congress in protecting our investment by providing measured real growth, coupled with the dedication of our courageous professional men and women in Naval Aviation, will ensure our strong contribution continues.

SUMMARY STATMENT OF GENERAL PITMAN

General PITMAN. I would like to enter my statement for the record as well.

Mr. Chairman and distinguished Members of the subcommittee, I welcome the opportunity to have my first chance to address this group as Deputy Chief of Staff for Marine Aviation. We are an integral part of naval aviation and the Navy/Marine Corps team. We comprise about 27 percent of the naval air power of the United States.

I too, share Admiral Dunn's pride and concern for where we are going and where we have been. We also shared in Naval Aviation's safest year. Last year was the safest year in Marine aviation's history, and despite the four accidents we have had this year, we are still flying safer than last year.

Although aircraft readiness has declined slightly when compared to the previous year, it is still in generally good shape across the board.

Mr. MURTHA. What parameters are you talking about? When you say this year it is less ready than the year before, what year are you talking?

General PITMAN. Fiscal year 1988 compared to fiscal year 1989 to date.

Our modernization program—although slowing somewhat in the current budget environment still provides us a quite capable, mostly modernized force. We are transitioning our last three active fighter squadrons into F-18s by the end of this fiscal year and will start transitioning our reserve squadrons as well. We will introduce our first night attack AV-8 aircraft and our first two-seat F/A-18D aircraft later this fall.

The Marine Corps will deploy its first AV-8 squadron to the western Pacific, WESTPAC, next month. Later this year, we will also deploy our first CH-53E heavy aircraft to WESTPAC. We will complete the transition of our last light attack squadrons to AV-8Bs early in fiscal year 1990.

We are working hard to improve the night capability of our helicopters with a night targeting system for the AH-1W, which is included in this budget. It also includes a pilot night vision system for the CH-53 which allows aircrews to see much better at night, additional third-generation ANVIS-6 goggles to complete the buy, and the OV-10D night observation system modification program.

So we believe that we have a very competent force as we look at the near-term threat, primarily due to the previous funding that we have had in our programs.

That is all I have, sir.

Thank you.

[The biographical sketch and statement of General Pitman follows:]

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BY HOUSE APPROPRIATIONS COMMITTEE

STATEMENT OF

LIEUTENANT GENERAL C. H. PITMAN

UNITED STATES MARINE CORPS

DEPUTY CHIEF OF STAFF FOR AVIATION

BEFORE THE

SUBCOMMITTEE ON DEFENSE

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

CONCERNING

MARINE CORPS AVIATION

ON 10 MAY 1989

NOT FOR PUBLICATION UNTIL RELEASED
BY HOUSE APPROPRIATIONS COMMITTEE

· LIEUTENANT GENERAL CHARLES H. PITMAN, USMC

Lieutenant General Charles H. Pitman is the Deputy Chief of Staff for Aviation, Headquarters Marine Corps, Washington, D.C.

Born in Chicago, Illinois on October 20, 1935, General Pitman enlisted in the Naval Reserve in October 1952, and subsequently enlisted in the Marine Corps. Entering flight training as a Naval Aviation Cadet in 1954, he received his wings in August 1955, and joined Marine Helicopter Transport Squadron 363, Santa Ana, California. The following January, he deployed to the Pacific Proving Grounds, where he served for seven months aboard the USS BADOENG STRAIT (CVE-116).

Returning to the United States in September 1956, he was transferred to the Marine Corps Auxillary Air Station, Mojave, California, where he performed duties as airfield operations officer, search and rescue pilot and Provost Marshal. In January 1958, he returned to Pensacola for jet transition. Upon completion, he was assigned to the Multi-Engine Training Group as a flight instructor. He was later assigned as officer-in-charge, Third Cadet Battalion, U.S. Naval School, Preflight.

Following his promotion to captain in January 1960, General Pitman attended Photographic Reconnaissance School, then transferred to El Toro, California, where he was assigned to Marine Composite Reconnaissance Squadron 3. In November 1962, he deployed to VMCJ-1, flying the RF-8 and EF-10 on reconnaissance missions throughout the Far East.

Returning from overseas in November 1963, he joined VMCJ-2 at Cherry Point, North Carolina. A year later, he was assigned as Aide-de-Camp to the Commanding General, 2d Marine Aircraft Wing.

He was promoted to major in 1966, and reported to Marine Medium Helicopter Squadron 261 at New River, N.C., for duty as operations officer and then executive officer, flying the CH-46. Leaving in November 1966 for Vietnam, he served initially as maintenance and later as operations officer in HMM-265 at Marble Mountain, Phu Bai and Khe Sahn.

He transferred to Washington, D.C., in February 1968, for duty as a weapons systems analyst in the Office of the Chief of Naval Operations (OP-05W), where his assignments involved evaluation of tactical air capabilities, both U.S. and foreign. While assigned to OPNAV, he returned to Vietnam in October and November 1968 to evaluate several new airborne detection systems.

In January 1970, he attended the Armed Forces Staff College. Graduating in June, he transitioned to the UH-1, and attended the Army's Cobra School. By then, a lieutenant colonel, he returned to Vietnam, where he commanded Headquarters and Maintenance Squadron, flying UH-1s and CH46s. While transitioning to the CH-53, he was wounded while flying in Laos as part of Operation LAM SON 719. After being stabilized at Kuhe Hospital, Okinawa, he was evacuated to the Naval Medical Center, Bethesda, Maryland.

After recovering, he assumed command of Marine Air Reserve Training Detachment, New Orleans, in July 1971, again flying the CH-46. He held this assignment until leaving to attend the Air War College in June 1973. In conjunction with this assignment, he completed his B.S. degree in Business Administration at Troy State.

Transferred to Headquarters Marine Corps in May 1974, he served two years as Aviation's Program Coordinator. After being promoted to colonel in October 1976, he served two years with the Secretary of the Navy's Office of Program Appraisal.

General Pitman transferred to Okinawa in July 1978, where he assumed command of Marine Aircraft Group 36. The following year, he returned to Washington where he was assigned as Marine Corps Aide to the Secretary of the Navy, and later as the Marine Corps Member, Chairman's Staff Group, Office of the Chairman of the Joint Chiefs of Staff, as his advisor on the Middle East, Africa, South/Central America, Counterterrorism and the Rapid Deployment Joint Task Force.

In June 1981, General Pitman assumed duty as Commanding Officer, Marine Aviation Training Support Group, Pensacola, Florida. While serving in this capacity, he was selected for promotion to brigadier general. He was advanced to that grade on May 11, 1982 and assigned duty as the Assistant Chief of Staff, C-5, ROK/U.S. Combined Forces Command in Seoul, Korea.

In August 1984, he returned to the 3d Marine Aircraft Wing, MCAS El Toro, California, where he served as Assistant Wing Commander until advanced to major general in April 1985. He then proceeded to Okinawa, Japan, where he commanded the 1st Marine Aircraft Wing from June 12, 1985 until his transfer to Headquarters, Marine Corps on Sept. 9, 1987. He then served as Assistant Deputy Chief of Staff for Aviation until assuming his present position on May 1, 1988. General Pitman was advanced to lieutenant general on July 7, 1988.

His personal decorations include: the Silver Star Medal; Defense Superior Service Medal with bronze oak leaf cluster in lieu of a second award; Legion of Merit; Distinguished Flying Cross with gold stars in lieu of second, third and fourth awards; Bronze Star Medal with Combat "V"; Purple Heart; Defense Meritorious Service Medal; Air Medal with gold Numeral 3 and bronze Numeral 62; Navy Commendation Medal with Combat "V"; the Vietnamese Cross of Gallantry with silver star; and the Korean Order of National Security Merit, Cheonsu Medal.

Lieutenant General Pitman is married to the former Shaunee Smith of Springfield, Colorado. They have two sons, two daughters and three grandchildren, residing in Virginia, Florida and Alabama.

Mr. Chairman; Distinguished Members of the Subcommittee:

I appreciate this opportunity to update you on the status of Marine aviation and present our plans for aircraft procurement in fiscal years 1990 and 1991. We are well aware that much of the success your Marine Corps now enjoys is directly attributable to the continuing support of Congress, and we are committed to providing you, and our Nation, the most combat-capable force that we can within the funding allocated. My report to you today will discuss Marine aviation, how we performed in 1988, what programs we are proposing for your consideration in the Budget before you, and a brief overview of our future warfighting requirements.

Your Marine Corps has traditionally been characterized as "lean and mean", and has prided itself on its ability to use allocated resources effectively. Since its birth in 1912, Marine aviation has been a part of this tradition. We are constantly striving to ensure that our aircraft training, readiness, and modernization programs conform to this proven principle which has served us so well.

1988 IN REVIEW

Last year, aviation safety was a major success story for the Marine Corps. Marine aviation enjoyed its lowest accident rate in history--2.68 class A accidents per 100,000 flight hours. Every Marine can take pride in the part their uncompromising vigilance contributed to the aviation safety record. The savings to our nation in material and lives is noteworthy.

The CY-88 safety record is a direct reflection of the attention to detail in planning and day-to-day operations, and the return on your investment in modern state-of-the-art systems. In 1988 we flew 350,000 tactical flight hours; had a 76.5% mission-capable readiness across all aircraft communities; participated in over fifteen major live-fire exercises in such places as Twentynine Palms, CA, the Philippines, and Australia; had combined operations with over twenty countries; and global deployments from the Persian Gulf to northern Norway.

The quality of our aircrew, maintenance, and support personnel has never been better. We have also realigned our personnel structure as a part of the Marine Corps' 2,900-man end-strength reduction. We stood down an Aircraft Group Headquarters (MAG-15) in Iwakuni, Japan, incorporating its squadrons and support personnel into the other Iwakuni-based group, MAG-12. We reorganized our Marine Wing Support Groups, and our HAWK Missile Battalions, reducing the number of personnel and moving some of the heavy equipment into the Reserves. Thus, we entered 1989 with a leaner but safer, more capable force.

FY90/91 BUDGET AND THE AVIATION PLAN

Marine aviation continues to improve its capability to support Marine Air-Ground Task Force (MAGTF) combat requirements. These requirements are drawn from our expeditionary role in support of the Amphibious Strategy and as the nation's premier force in readiness.

Marine Corps planning has undergone considerable revision, and so has the assessment process by which Marine aviation requirements are developed. The process begins at the Marine Corps Combat Development Command (MCCDC) at Quantico, where Marine Corps doctrine and planning has been centralized. Using inputs from CINCS and FMF commanders, MCCDC planners develop the MAGTF Master Plan (MMP) which contains a prioritized list of capabilities to meet mission requirements for all levels of conflict. Subordinate plans which identify changes in doctrine, organization, training, equipment, and facilities necessary to satisfy the capabilities, are developed for each of the four MAGTF elements (Command, Aviation, Ground, and Combat Service Support). The Aviation Combat Element subordinate plan is called the Marine Aviation Combat Plan (MACP).

Aviation planners at Headquarters Marine Corps assess the MACP requirements and apply Defense Guidance, manpower limitations, support requirements, and studies to develop constrained requirements which are incorporated into the Marine Aviation Plan (AVPLAN).

The AVPLAN ensures that Marine aviation remains responsive to MAGTF warfighting requirements and procures equipment which increases combat efficiency across all aviation communities. The range of our efforts is far-reaching. In FY90/91, the Marine aviation programs in the budget request reflect the movement toward greater expeditionary capability, night all-weather operations in a high threat missile, laser, and chemical environment, and a greater heavy lift capability while maintaining effective command and control. All aviation force structure decisions, doctrinal changes, tactical development, training programs and technology decisions are driven by the fundamental question--how will the change add to the Marine Corps' combat capability?

Programs requested in the FY90/91 budget reflect an assessment of their contribution to these objectives and to the six functions of Marine aviation--anti-air warfare, offensive air support, assault support, aerial reconnaissance, electronic warfare, and command and control of aircraft and missiles--as they support MAGTF warfighting requirements. I would like to briefly recap what each of these functions provides for the MAGTF commander.

Anti-air warfare provides the air superiority over the battlefield that is essential to successful operations. The F/A-18 aircraft and the ground-based HAWK and Stinger missile systems are employed as an integrated air defense system designed to destroy enemy air and missile threats.

Offensive air support delivers firepower against enemy forces for the destruction, neutralization, or interdiction of installations, equipment, and personnel. The A-6E, AV-8B, and F/A-18 provide the MAGTF commander with the heavy firepower lacking in the light, expeditionary ground combat element.

Assault support provides mobility, close in fire support, and logistic support for the MAGTF. Our four types of helicopters--heavy lift (CH-53), medium lift (CH-46), attack (AH-1W), and utility (UH-1N)--provide mobility with which to apply force and the logistical support to sustain the effort. Attack helicopters provide close in fire support, and utility helicopters act as command and control and medical evacuation aircraft. The assault support force is rounded out by KC-130s which provide aerial refueling and other assault support missions.

Aerial reconnaissance and electronic warfare provide the commander with vital combat tactical and strategic information. The RF-4B is our tactical photographic reconnaissance aircraft and the EA-6B provides electronic information as well as the ability to jam enemy radars and communications. Plans call for future versions of the two-seat F/A-18D to replace the aging RF-4B. The OV-10 provides visual reconnaissance as well as the ability to act as an airborne Forward Air Controller in a low-intensity conflict.

The control of aircraft and missiles is provided by the Marine Air Command and Control System, which ties the other five functions together into a single, coordinated structure for the force commander.

Technology is now available that gives Marine Corps rotary wing and fixed wing aircraft the capability to overcome many of the obstacles posed by night and adverse weather--permitting aviation support for around-the-clock MAGTF operations. The AV-8B and F/A-18 Night Attack Systems, AH-1W Night Targeting System, CH-53E Night Vision System, and the OV-10D+ Night Observation System reflect our commitment to this capability.

Advanced technology is being introduced only where there is an absolute assurance of increased reliability and maintainability in austere expeditionary combat environments. The Marine Corps must modernize its aviation force to field one that is completely capable of operating in an expeditionary environment. We have capitalized on revolutionary concepts such as Vertical/Short

Takeoff and Landing (V/STOL). Where possible, we will exploit these concepts in developing multi-mission expeditionary-capable variants, such as an Attack/Observation aircraft (VMAO) and an Advanced Short Takeoff and Vertical Landing aircraft (ASTOVL), to replace other aircraft and fulfill our warfighting needs well into the next century.

V/STOL is a concept critical to providing the mobility and support required on tomorrow's battlefield. Studies and exercises have shown that reliance on the fixed air base requires an unacceptable drain on manpower for security and provides a lucrative target that can easily be rendered unusable to traditional aircraft. All too often, traditional airfields are too far to the rear, causing delays in responsiveness to ground combat element support requirements.

As we approach the year 2000, we hope to reduce the number of different aircraft type/model/series (TMS) in the Marine Corps' inventory. The goal is to decrease the number of people required to support our weapon systems and simultaneously increase mission effectiveness in terms of aircrew and aircraft performance. Done properly, we can improve the potential for victory on the battlefield while reducing the cost of our combat-ready force.

RESERVE AVIATION

Marine Reserve aviation exists to augment and reinforce the active aviation forces in the event of mobilization, and to serve as the nucleus of a Fourth Marine Aircraft Wing.

As the active Marine aviation forces are modernized and reduced in TMS, the same efforts are being applied to the Reserves. The modernization of the 4th Marine Aircraft Wing is the subject of a comprehensive Marine aviation review.

The Reserve F-4S squadrons are beginning their transition to the F/A-18 and the first squadron will be completely equipped by September 1989. The aggressor squadron in Yuma, Arizona received F-5s in April 1989 as a replacement for their Israeli F-21 KFIRs. Thanks to your support, the Marine Corps continues to receive new KC-130Ts for the Reserve units at Glenview, Illinois and Newburgh, New York.

The fundamental goal in the achievement of the total force concept is Reserve aircraft and system commonality with the active forces. Budgetary constraints are slowing down efforts to modernize our Reserve aviation assets as quickly as we had anticipated.

ROTARY WING MODERNIZATION

ASSAULT SUPPORT. The FY-90/91 amended budget requests a CH-53/UH-60 mixture to supplant the MV-22. We are currently assessing how this mixture and other possible options can alleviate our medium assault support shortfall. Moreover, we must ensure that the Marine Corps has a viable warfighting capability into the 21st century.

CH-53E. The CH-53E is the Marine Corps' only heavy-lift support helicopter. The CH-53E provides the ground commander the operational flexibility he needs to reposition artillery and light armored vehicles (LAV's), to recover heavy equipment and aircraft, and to deliver the large quantities of supplies to wherever they are needed on the battlefield.

We currently have two CH-53E squadrons operating at New River, North Carolina and two at Tustin, California. Equipped with 12 aircraft each, these squadrons support continuous deployments in the Mediterranean and the western Pacific, FMF and JCS exercises, and both ground combat and aircrew training. Fiscal year 1989 procurement is the last year of a very successful four-year multi-year procurement which saved an estimated $98M. This procurement plus 23 planned for FY90 will bring our total to 125 aircraft.

AH-1W COBRA. The AH-1W is the Marine Corps' attack helicopter. It is a significant improvement over the AH-1T weapons system in operating capability. The AH-1W fulfills the mission requirement to provide enroute protection of assault helicopters. Additionally, it is used for landing zone fire suppression, close-in fire support, destruction of enemy armor, and defense against enemy attack helicopters.

The ongoing modification program which converts AH-1Ts to AH-1Ws and our previous procurement of 78 aircraft will bring our active force total to 115 aircraft organized into one training and six tactical squadrons. The Reserve force, however, is flying the older model, Vietnam-ea, AH-1J helicopter. The AH-1J does not have anti-armor or point-target weapon systems and is extremely limited in night-fighting capability. Our plans include AH-1Ws for the Reserve force. Procurement has not been possible because of budgetary constraints.

The Night Targeting System is a U.S. and Government of Israel joint RDT&E program which will greatly enhance the AH-1W night-warfighting capability. It is on schedule and we expect first deliveries in FY93. The Night Targeting System will enable aircrew to locate, designate, and fire on targets at night with their anti-armor weapons, HELLFIRE and TOW missiles, 20MM gun and 2.75 rockets.

FIXED WING

Marine Corps fixed wing aviation is also the subject of modernization plans. As with rotary wing aviation, the emphasis is on reducing the number of aircraft TMS and increasing our warfighting capabilities. By late FY95, we hope to see the Reserve force equipped with the same types of tactical jet aircraft as the active forces.

F/A-18 HORNET. The Hornet fulfills both our air-to-air and air-to-ground mission requirements and can be operated from conventional or expeditionary airfields or from aircraft carriers. The F/A-18 incorporates state-of-the-art technology such as digital fly-by-wire flight controls, multi-mode radar, and use of lightweight composites to enhance the combat capability and flexibility of the aircraft. We have plans to upgrade it to meet our tactical reconnaissance missions and replace other TMS aircraft.

The F/A-18 provides a modern offensive and defensive anti-air capability to the MAGTF. Advanced avionics allow the Hornet pilot to accurately navigate, to strike enemy ground targets with the latest array of air-to-ground ordnance, and to detect and destroy enemy aircraft. The Hornet's versatility makes it deployable, sustainable, and effective across the spectrum of conflict. Increased operational reliability has improved the F/A-18 sortie generation rates while superior aerodynamic design, maintainability, and multi-mission capability make it particularly well-suited to the needs of the MAGTF in an austere expeditionary environment.

The newer and latest version of the F/A-18, the F/A-18C, is currently being introduced into our three fighter/attack squadrons in Hawaii. If the currently planned procurement continues, we anticipate having an all-F/A-18 fighter/attack force by late 1990s.

AV-8B HARRIER. The AV-8B Harrier will be the keystone of the Marine Corps' light attack forces well into the 21st century. It is the primary aircraft for providing critical, timely close air support to the ground commander. The AV-8B is an extremely effective and efficient aircraft in this role because of its modernized weapon systems, combat radius, and basing flexibility. The Harrier's ability to operate from roads, ships, grass fields, or prepared airstrips permits the quick response needed by the ground commander--bombs on target within 20 minutes after request.

An expeditionary force like a MAGTF is relatively "light" in organic heavy artillery and tanks, and must heavily rely on its tactical aircraft to provide the required fire support. The V/STOL-capable AV-8B is well-suited for providing dedicated close air support to Marine ground forces. The AV-8B has shown its performance and versatility around the globe in all types of conditions.

The Marine Corps active force will have an all-AV-8B light attack force by early 1992 following the conversion of VMA-214, the last active A-4M squadron. The AV-8B community has taken the lead in the development and fielding of night vision devices and compatible cockpit lighting for fixed wing aircraft. The first AV-8B night attack aircraft will be delivered to MAG-13 in Yuma, Arizona in September 1989.

The Marine Corps requirement is 323 aircraft to support the Force (8 squadrons X 20 A/C = 160 plus pipeline, attrition, and a training squadron) through year 2006. The present multi-year procurement contract--24 aircraft per year for three years--will bring our total procurement to 276 aircraft.

ALL WEATHER ATTACK. The venerable A-6E presently fills our all-weather attack requirement, but a replacement is clearly in order. Until recently, the A-12 has been the only viable alternative for the A-6E replacement, and Marine participation in the program was necessary to meet MAGTF all-weather attack requirements. Present fiscal constraints and the questionable expeditionary utility of the A-12 have necessitated a re-examination of our earlier position. Therefore, the Marine Corps is looking at the F/A-18D to supplant the A-6E. Essential modifications are planned to upgrade the radar and give it an all-weather attack capability. An F/A-18D with an all-weather attack capability would significantly reduce the TMS in our force and provide a lower-cost alternative to the A-12.

MARINE AIR COMMAND AND CONTROL

The Marine Air Command and Control System coordinates all of the functions of Marine aviation. It provides the commander with the means to integrate all of the other functions of Marine Aviation to fulfill the requirement for continuous aviation support. The Marine Air Command and Control System modernization is well underway.

MATCALS. The Marine Air Traffic Control and Landing System (MATCALS) is a tactical air traffic control program designed to replace the precision/surveillance radars and operating shelters of the Marine Air Traffic Control Squadrons. This system will replace the AN/TSQ-18 equipment developed in the late 1950's and will provide a highly automated, software-intensive, air traffic control system designed to increase aircraft landing rates and flight safety. The first of 17 systems was delivered to the Fleet in 1986 and Initial Operational Capability (IOC) is scheduled for 1990.

TACTICAL AIR CONTROL MODULE. The Tactical Air Control Module (TAOM) AN/TYQ-23 is a transportable, modularized, software-intensive, automated air command and control system. It is capable of controlling and coordinating the employment of a full range of air defense weapons, interceptors and surface-to-air missiles in support of the MAGTF. The AN/TYQ-23 command and control system is engineered to provide a modular operational capability in support of Marine Expeditionary Brigade (MEB) and Marine Expeditionary Force (MEF)- sized operational units and associated deployments.

GROUND-BASED AIR DEFENSE

Further warfighting enhancement is provided through reorganization of our ground-based air defense weapons systems, HAWK and Stinger. This realignment effort provides a balance of close-air and medium-range firepower for all levels of MAGTF composition. Procurement of both HAWK and Stinger are joint ventures with the Army through cost-effective multi-year procurement (MYP) programs.

The HAWK expansion and improvement plan includes the phased activation of the 1st Light Anti Aircraft Missile (LAAM) Battalion in III MEF. The ultimate goal is three active HAWK battalions of two "square" batteries each. Fourth LAAM Battalion in the Reserve force will grow to four "square"-configured batteries.

The Low Altitude Air Defense (LAAD) expansion plan reflects the reorganization of Forward Area Air Defense Batteries (FAAD) into LAAD Battalions. A dedicated LAAD Btry of 45 Stinger teams is available for each MEB, while the 90 Stinger teams of the active force LAAD Battalion support the MEF. In the near term, the reserve 4th FAAD Btry will expand into battalion organization. Future plans also call for the creation of two additional firing batteries in the 4th LAAD Battalion structure which will result in 180 Stinger teams in the Reserve force.

READINESS AND SUSTAINABILITY

If our aircrews are to be effective in battle, they must train as they would fight. Our flight hour program has allowed our aircrews to attain and maintain proficiency. It is currently funded at the minimum level required to continue their proficiency. Your support in this area is essential if we are to maintain an effective level of readiness.

Last year we reported that our inventory of air-launched ordnance was below the level necessary for training readiness and sustainability. This situation has not changed, nor is it likely to improve in the near term. The future inventory of air-launched weapons will be dependent on adequate funding.

CONCLUSION

In this year's posture statement I have focused on modernization programs. I feel a strong need at this critical time in defense budgeting to stress Marine aviation's number one requirement--a sound and consistent investment in the future of Marine aviation. The changing nature of future battlefields and the need for the right mix of people, equipment, and tactics are critical to our success. Our Marines at the Combat Development Command in Quantico, Virginia, and at Marine Air Weapons Training Squadron-1 in Yuma, Arizona, work hard to develop the equipment, tactics, and training we need to ensure that we are not surprised on the battlefield.

We in Marine aviation are very appreciative of the efforts of the American people and Congress in support of our programs. We have worked hard to build an expeditionary force-in-being second to none, ready on a moment's notice to deploy, sustain operations, and fight and win on any battlefield in the world over the full spectrum of conflict.

Investments in force structure sustainability and readiness have paid off. Our training and readiness, war stocks, and people programs have resulted in an aviation force that is lean, tough, fit, and capable. Now is not the time to let up. With your support for our programs we will remain this nation's most efficient and effective expeditionary warfighting force.

READINESS AND SAFETY

Mr. **Murtha**. I assume when you express concern, you mean more than concern. You see this readiness and safety record that both you and General Pitman talked about slipping because of the money that is available.

For instance, when you say we have the best personnel available, there is a reason for that. We have better training, more money available, and they are flying more hours than they flew, say, eight years ago.

The Navy never did improve as much as the Air Force, but there was a substantial increase in the efficiency and the accident rate hasn't dropped by accident. It dropped because of additional funding and we were able to keep readiness at a much higher level.

So when you say concern, you are obviously expressing the fact that readiness is starting to slip.

Admiral **Dunn**. Yes, sir.

The fact that our readiness has gone higher, our people are good, and our accident record has improved, is because of adequate funding we have had in previous years.

We can survive and maintain high readiness and low accident rates and good personnel for a couple of years, but with the funding we see——

Mr. **Murtha**. It might look like you can do it, but when it starts slipping across the board, when you start running out of spare parts and money to recruit people and you don't pay people, it goes fast.

Admiral **Dunn**. We agree.

We are living off the fat of the sufficiency of prior years.

Mr. **Murtha**. And it is not an easy thing to regain. I think our force is as good as any force we have ever had and the reason it is so good is because we have a good mix.

We are starting to affect sustainability now. Next we are going to be affecting readiness or modernization or total troop strength, one or the other.

Admiral **Dunn**. You are absolutely right.

Mr. **Murtha**. Mr. McDade.

F–14D (TOMCAT)

Mr. **McDade**. Thank you, Mr. Chairman. Admiral Dunn, welcome.

Let me ask you some questions about the F–14D. The amended budget proposes the cancellation of the F–14D new production program in fiscal year 1990. The remanufacture of existing F–14A aircraft to the F–14D configuration is proposed for continuation under the amended budget. The reduction identified with removal of 12 new production aircraft is $365 million.

Is that the figure that you would agree with?

Admiral **Dunn**. Yes, sir.

Mr. **McDade**. A lot of people are scrubbing the thing since the decision was announced. There is concern that there is currently an inventory shortfall of F–14 aircraft. Is there?

Admiral DUNN. No, sir, there is not. We have an inventory of 477 F-14s of the A and the A plus configuration against a requirement of 458.

So we actually have a slight surplus of F-14s in 1989.

Mr. MCDADE. Those are the current figures?

Admiral DUNN. Yes, sir; as of today.

Mr. MCDADE. They take into consideration any kind of force structure changes the new carriers coming in?

Admiral DUNN. They take into consideration——

Mr. MCDADE. The new carriers coming in?

Admiral DUNN. As the new carriers come in, we will continue to have a sufficiency of F-14s. We will meet or exceed requirements out through the five year plan.

Mr. MCDADE. When do you expect a Navy version of the ATF to enter the fleet?

Admiral DUNN. It should achieve Navy initial operational capability somewhere around the turn of the century; somewhere around the year 2000.

Mr. MCDADE. We don't know how good that date is. It is a highly technical, difficult problem that everybody has.

Admiral DUNN. We don't know that yet because it is still in concept development.

Mr. MCDADE. You are confident that there will be enough F-14s around through that interim period that there won't be a shortfall between the advent of the ATF, the Navy version, and the requirement for a top-of-the-line fighter aircraft by the year 2000?

Admiral DUNN. At this point, I am confident, barring a major war.

Mr. MCDADE. Barring a major war?

Admiral DUNN. Yes, sir. That is a footnote for any of our inventories.

Mr. MCDADE. Will you have a fighter aircraft shortfall at the time of NATF introduction if no more F-14's are procured? What will the shortfall be?

Admiral DUNN. Assuming NATF introduction by the year 2000, the fighter aircraft inventory shortfall ———.

Mr. MCDADE. The remanufacture of existing F-14A aircraft to the F-14D was supposed to provide a very significant increase in capability.

What will be the increase in service life for the airframe after its remanufacture? Can you tell us that?

Admiral DUNN. Admiral Wilkinson?

Admiral WILKINSON. Basically, there is no increase in service life to the airframe due to remanufacture. We are taking aircraft with adequate service life remaining for the remanufacture program.

Mr. MCDADE. What is the limit?

Admiral WILKINSON. I believe it is 7,500 hours after remanufacture.

Mr. MCDADE. So you are only going to remanufacture those that will give you another 7,500 hours?

Admiral WILKINSON. That is what we plan.

Mr. MCDADE. So every plane you put through to remanufacture, you can look at it and say it has 7,500 hours on it?

Admiral WILKINSON. That is our plan.

Mr. McDade. What will be the cost of the new remanufactured aircraft now that new procurement is cancelled? There is bound to be some effect. What is it?

Admiral Wilkinson. $26.9 million is the unit flyaway price.

Mr. McDade. Is what?

Admiral Wilkinson. $26.9 million.

Mr. McDade. Calculated over the life of the program?

Admiral Wilkinson. Yes, sir.

Mr. McDade. What is it in the first year?

Admiral Wilkinson. The first year is close to $60 million the current flyaway in the first year is $60.2 million.

Mr. McDade. The second year?

Admiral Wilkinson. $40.8 million.

Mr. McDade. The third year?

Admiral Wilkinson. $31.3 million. That is recurring flyaway cost.

Mr. McDade. Tell me the cost implications for E-2C production, A-6 rewing, and EA-6B remanufacture as a result. What are the consequences?

Admiral Wilkinson. We are still trying to get a good handle on that.

It depends on how Grumman reacts to the loss of the F-14D, how fast they get rid of people and facilities.

Probably the minimum is about a million dollars for the EA-6B remanufacture each and $1.5 million to $2 million more for the E-2C program, but we have heard numbers much higher than that from Grumman.

Mr. McDade. Would you elaborate—I am not familiar with what you said. It depends on how quickly they react?

Admiral Wilkinson. With the loss of the F-14D, Grumman will have a lot of excess capacity and more people than they need to do the remaining programs. It depends on how fast they lay off those people and whether or not they go to just a small manufacturing outfit or try to remain as a major airframe manufacturer.

Mr. McDade. The cost figures cited are based on a quick reaction?

Admiral Wilkinson. Yes, sir.

Mr. McDade. What will be the cost of the F-14 line shutdown? Can you tell us, please?

Admiral Wilkinson. It is going to cost about $170 million.

Mr. McDade. Would you say that again?

Admiral Wilkinson. About $170 million.

Mr. McDade. Based on the relatively small amount of funding reduction, it appears to a lot of people that the cancellation of F-14D new production was not intended to save money. In your opinion, what was the rationale for the decision?

Admiral Wilkinson. That was, as you know, sir, an OSD decision.

Mr. McDade. There is not that much money on the table, is there?

Admiral Wilkinson. They took out $365 million for 12 aircraft.

Mr. McDade. When you look at the increased costs that bump into the other decisions that are going to be made because of that, you don't net $365 million, do you?

Admiral Wilkinson. The $365 million takes into account the shutdown of the line.

Mr. McDade. And the increased costs of the other items?

Admiral Wilkinson. Yes.

Mr. McDade. So the Navy saves $365 million?

Admiral Wilkinson. In fiscal year 1990; right, sir.

Mr. McDade. When that occurs and if there is, as you say, a quick determination by Grumman to close down or become no longer an aircraft manufacturer, Navy has one producer left for fighter aircraft; is that right?

Admiral Wilkinson. McDonnell Douglas.

Mr. McDade. Do you think that is a healthy situation?

Admiral Wilkinson. Of course, we are here to support the budget, Mr. McDade.

Personally, I would like to see Grumman around for a long time with enough engineering to support the aircraft that we currently have in the fleet. We are still heavily dependent upon Grumman aircraft in the Navy and Grumman's support.

Mr. McDade. You are here in the interest of NAVAIR.

Admiral Dunn, I would like your comments because there are questions on the table that if you knock out the only other producer that you have, are we getting ourselves into a situation where you abandon competition and you can't get it back?

Admiral Wilkinson. I guess you could argue that Grumman is no longer competitive with the other manufacturers. They have not won a large contract for some time. I worry about that, but there are other airframe manufacturers in the country. They could learn to build carrier airplanes.

Admiral Dunn. None of us like the idea of seeing a company like Grumman, which has produced so many outstanding aircraft for the Navy, go away. That is certainly not the intent of anyone here, to make that happen. But given the overall affordability and the need for aircraft of various kinds, we have to take some drastic actions among which was foregoing new production of the F-14D and instead relying on a remanufacture to give us increased capability.

Mr. McDade. What is the savings over the estimated life, past the year 2000, whenever you get to the ATF? That is a figure that is, I know, a hard one for you to come by.

How do you define that figure?

Admiral Wilkinson. It is around $400 to $500 million a year out to 1994.

Mr. McDade. That is based on the assumption of buying X number of airplanes a year.

Admiral Dunn. We were going to buy 12 a year.

Mr. McDade. That figure is based upon not buying 12 airplanes per year out to the year 2000?

Admiral Wilkinson. That is correct, sir.

Mr. McDade. It does not include the numbers that increase the cost of producing other items in the shop?

Admiral Wilkinson. It does not.

Mr. McDade. You told me that $365 million was the total cost.

Admiral Wilkinson. $365 million is what came out of the F-14 fiscal year 1990 budget.

Mr. McDade. We talked about the increased costs of having fewer planes in the house being produced——

Admiral Wilkinson. Yes, sir.

Mr. McDade. I wanted to make clear that that $365 million was the total net saving, and I understood you to say that you had calculated it and it was the total savings.

Admiral Wilkinson. No, sir. That $365 million is what was taken out of the F-14D line in fiscal year 1990.

Mr. McDade. What is the net saving?

Admiral Wilkinson. That is the number I have a hard time determining.

There could be $1 million to $2 million an aircraft increase or if you believe what some of the Grumman people are saying, up to $12 million per aircraft.

Mr. McDade. Do you have a personal opinion?

Admiral Wilkinson. No.

Mr. McDade. Admiral Dunn.

Admiral Dunn. The only personal opinion I could venture is that there will be a net savings.

The cost of the E-2's Grumman continues to produce will go up some. The cost of the remanufacture of F-14D's may go up. We just don't have a good handle on that.

Mr. McDade. I know you think about it more deeply than this committee when you talk about the future of Naval air and it seems in a large sense that is what we begin to talk about.

We see your colleagues, the shipbuilding side, fight like the dickens to get yard-by-yard competition so they would have two suppliers to compete against each other. They presented a chart with dramatic savings in what looked to be a good, hard-fisted, well-run program based upon one element, competition.

That is an unknown cost, it seems, as we talk back and forth about this.

I hear you saying—and I guess everybody at the table—that we would all like to see Grumman in business as a manufacturer supplying for the Navy and the affordability question. We come down to we can't afford it.

Admiral Dunn. We are not abandoning competition because in addition to McDonnell Douglas, General Dynamics is in a league with McDonnell Douglas. Lockheed has also built a carrier aircraft.

There is experience around. We prefer to see Grumman stay in business, but given the overall affordability, I don't see that we have much choice.

Mr. McDade. If you get that airplane by the year 2000, that will be the first time you have them producing a carrier deck airplane for us?

Admiral Dunn. It depends on who makes it.

There are two teams on the ATF and it depends on which team wins.

Mr. McDade. I yield to Bob Livingston.

Mr. Livingston. Thank you, I have another hearing to go to.

I want to tell Admiral Dunn, General Pitman, and Admiral Wilkinson that I have a particular concern for the V-22, and the Marine Corps' needs for the KC-130, and the Navy Reserves' needs for the C-130s, as well as for the approved acoustic detection system.

C-130 LOGISTIC AIRCRAFT

Quickly, on the C-130s, one question for the Naval Reserve, Admiral Smith earlier said in previous testimony this year that one of his requirements was for acquisition of additional heavy lift aircraft to better equip the Naval Reserve to meet wartime mobilization requirements.

Admiral Dunn, as a former Chief of Naval Reserve and a leader of naval aviation, would you say that your top unfunded logistics priority is acquiring additional C-130 aircraft?

Admiral DUNN. Yes, sir; I would.

Mr. LIVINGSTON. Thank you very much. I would like to submit questions for the record.

Thank you, Mr. Chairman.

[CLERK'S NOTE.—Questions submitted by Mr. Livingston and the answers thereto follow:]

NAVAL RESERVE C-130S

Question. Admiral Dunn, as former Chief of Naval Reserve, can you give us your assessment of the contribution toward fleet readiness provided by the Naval Air Reserve force?

Answer. As you know, all Navy CONUS airlift capability resides in the Naval Air Reserve Force. The 27 aircraft C-9 fleet is the workhorse of our logistics force. Regretfully, the C-9 is limited in its capacity to carry outsize cargo over long distances required in mobilization. For instance, F/A-18 engines, most helicopter rotor blades, and many critical ship replacement parts simply will not fit in the C-9 cargo door. Additionally, the C-130 has better short field/crosswind capability than the C-9.

Question. Would you agree that future Fleet Commanders will benefit from increased air logistics support provided by the Naval Air Reserve?

Answer. Yes, I would. Navy Organic Tactical airlift is critical to the wartime readiness and sustainability of our ships. Some shore to shore movement of high priority cargo is necessary to redirect our logistics flow to support a mobile fighting force. C-130's provide a capability not inherent in the C-9 and are compatible with existing DoD inventory.

Question. Would you also say that acquisition of more C-130 type aircraft would substantially contribute to Tactical Airlift capability?

Answer. Yes. The tail-loading capability and heavy lift capacity of the C-130 is ideally suited to supporting our Fleet logistics mobilization requirements.

Question. How many additional C-130's do you need?

Answer. As you know, we have 7 C-130 aircraft—all based out of CONUS. A 1986 Center for Naval Analyses (CNA) study established a requirement for 29 C-130 aircraft. The shortfall, therefore, is 22 aircraft, but due to budget constraints we have not requested additional assets.

Question. In your written statement you mention that motivated, well trained sailors are the key to sustaining the future fighting capability of Naval Aviation. How could efficient logistics support combining C-9's and C-10's help with the training amd motivation of tomorrow's sailor?

Answer. Without a doubt, the sailor of the future must know that we as Naval leaders are concerned enough to supply him in a rapid, efficient manner with the tools he requires to fight. Training the Naval Air Reserve Force in the aircraft we need for mobilization is the key to sustaining that lifeline to the sailor on the seas, on the firing line.

MARINE CORPS RESERVE KC-130 TANKERS

Question. General Pitman, over the past several years, Congress has appropriated funds each year for two KC-130 tankers to modernize and expand the Marine reserve tanker capability. How is this program progressing?

Answer. With the new KC-130 tankers that Congress has provided the Marine Corps Reserve, we have been able to stand up a new squadron at Stewart, NY, and are replacing the Marine Corps' oldest tankers at Glenview, IL, with new ones.

Question. How many aircraft have been funded and how many more do you need to meet your total requirement?

Answer. Congress has appropriated funds for 18 new KC-130T tankers. We require eight additional KC-130T's to fill both squadrons with new aircraft and provide pipeline assets.

IMPROVED ACOUSTIC DETECTION SYSTEM (IPADS)

Question. Admiral Dunn, Admiral Wilkinson, in fiscal year 1989 Congress authorized and appropriated $55 million to enhance the ASW capability of the reserve P-3 fleet. Please provide for the record your position on the IPADS (Improved AN/AQA-7(V)12 Acoustic Detection System) system and a comparative analysis on how the IPADS system compares to the current Update III now being used by the active duty fleet.

Answer. Continued development of IPADS for introduction into the Naval Air Reserve Maritime Patrol Force is not recommended for the following reasons: Cost to Upgrade 60 P-3B aircraft would be $170M; IPADS would be unique to the Naval Air Reserve; costly reserve-only integrated logistic support would need to be developed; and there is no commonality with fleet acoustic systems, creating training and operational deficiencies.

The best long term solution to Reserve MPA modernization is the horizontal integration of new P-7 (LRAACA) aircraft in conjunction with P-3C Update III and Update IV RESFORON transitions.

Question. How does the Navy intend to utilize the $55 million provided in FY 1989? Provide details and funding breakdowns.

Answer. Upgrades are planned to three major areas of the P-3B aircraft: ESM enhancement (upgrade to the ALD-2 system)—$26.6 million; 99 Channel Sonobuoy Receiver System—$12.6 million; and improved Radar and Radar Display Systems—$15.8 million.

Question. Since IPADS will provide reserve aircraft with a capability to monitor ERAPS, TSS and other developing sonobuoy systems, is there any alternative to IPADS for the older Reserve aircraft?

Answer. Directed retirement of 73 P-3A/B Aircraft leaves only 60 P-3B Aircraft in the reserve fleet. MPA modernization plans which transfer Update III aircraft to the reserve force will provide, with planned software upgrades, the capability to utilize advanced sonobuoy systems.

[CLERK'S NOTE.—End of questions submitted by Mr. Livingston.]

V-22 (OSPREY) ALTERNATIVES

Mr. DICKS. Admiral Dunn, your testimony states, "In view of the V-22 cancellation, the Department has proposed a mix of CH-60 and H-53 helicopters to satisfy the over-the-horizon medium lift assault requirements of the Marine Corps.

Will these helicopters provide the same capability of the V-22? How do they compare in speed, range, and lift capability?

Admiral DUNN. No, sir.

Mr. DICKS. How do they compare in speed, range and lift capability? General Pitman.

General PITMAN. Sir, the alternative mix speed is about half, and its range is less than half, depending on which configuration you are speaking of, but generally less than half. What was the last part?

Mr. DICKS. Lift capability.

General PITMAN. If we received all those aircraft we would, in fact, have an equal lift capability. Tactically speaking however, the alternative proposed does not carry the equipment the way we would normally carry it in a combat situation. So the alternative that we are looking at offers less lift than we would have with the MV-22.

Mr. DICKS. How many CH-60s and H-53s are planned for purchase to meet this mission?

General PITMAN. An additional 376 CH-53E's and an additional 590 H-60s including the Navy CH-60's.

Mr. DICKS. What capability sacrifices will this require and how do acquisition and operational costs compare?

General PITMAN. Sir, the acquisition costs are less in the near term.

Mr. DICKS. How much less?

General PITMAN. The total procurement costs for a CH-53E/H-60 single sling mix in constant fiscal year 1988 dollars would run about $2 billion less than a V-22 competition procurement.

Mr. DICKS. How many years is that? Over what time period?

General PITMAN. That would be through about the year 2006.

Mr. DICKS. What is the operational cost difference?

General PITMAN. In constant fiscal year 1988 dollars, the operating cost goes up considerably for the alternative program; approximately $10 billion, according to our figures, over the life of the program.

Mr. DICKS. The operational costs are $10 billion higher?

General PITMAN. Yes, sir; that is what our computations show.

Mr. DICKS. To use the CH-53s and the CH-60s?

General PITMAN. Yes, sir.

Mr. DICKS. Can you explain that number?

General PITMAN. Yes, sir. It takes approximately six thousand additional Marines to man these extra aircraft. We are also talking about having a number of extra squadrons which will require facilities.

We would be required to operate many more aircraft and train in excess of 500 more pilots. All of this increases the long-term costs of the alternative mix, if we were to achieve that mix.

Mr. DICKS. You say "if we were to achieve it" with some skepticism in your voice, General.

Are you doubtful that you are going to get those 376 CH-53Es and those 590 CH-60s?

Is that what you are suggesting?

General PITMAN. Yes, sir. That is what I am suggesting. Not because it isn't the intent to provide the aircraft, but I am doubtful that we are going to be able to man them with the 6,000 additional Marines required. It is a very difficult equation.

Mr. DICKS. It is the operational side that causes you the most concern?

General PITMAN. Yes, sir.

Mr. DICKS. A critical aspect of the Marine Corps over-the-horizon assault concept is the ability of the task force to rapidly approach the beach from over the horizon.

How does a heavier reliance on CH-53 and H-60 helicopters alter the Marine Corps over-the-horizon assault strategy?

General PITMAN. Obviously it brings the horizon in closer because of the limited range of the CH-53s and H-60s. When they are carrying a full load to accomplish the assault mission, their range is considerably less than that of the V-22, so we would have a lot less capability. We will still have an OTH capability, technically speaking.

Mr. DICKS. So it is more dangerous, obviously, for the Marines?

General PITMAN. Yes, sir. We believe there is a decrease in survivability.

AMPHIBIOUS ASSAULT CASUALTIES

Mr. DICKS. What are the expected casualties of an amphibious assault relying only on helicopter lift and how do those compare with a scenario employing V-22 aircraft?

General PITMAN. We have looked at it based on the survivability estimates of the aircraft and there is a considerable difference in the casualties we would anticipate. I could provide you the study for the record.

Mr. DICKS. We would like to have the study for the record.

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

General PITMAN. It would show the numbers on a particular scenario. We looked at it over a period of time, not just in the amphibious assault, but in subsequent operations ashore. We have a much larger mission than just getting ashore. We intend to stay there and fight. We are not going to be withdrawing so these aircrafts will continue to support our operations ashore.

Mr. **Dicks**. Describe a little bit of that. How would they be used on shore?

General **Pitman**. We would use them ashore much as we have used helicopters in the past. However, we would avoid enemy concentrations and be able to get into his soft areas. We would have the additional speed and range of the V-22 to extend our forces and get behind his strong points, thus increasing our survivability and decreasing our vulnerability.

Mr. **Dicks**. We are now in a period of international uncertainty with respect to our most dangerous potential adversary.

While far from assured, there is a better prospect today than any time in the last four years that a fundamental change in super power relations may be possible.

The focus does shift from a fixation on European central front scenarios to other potential threats, especially in the Third World and the role of amphibious assault and special operations forces may become significantly more important.

Given this situation, couldn't a good case be made that we should not cancel V-22 until we get a better idea on how these issues will play out?

General **Pitman**. I think what you said is quite accurate. The decision was made on the basis of affordability.

Mr. **Dicks**. But did the operational numbers get to the Secretary? I don't think you are going to save money if you have to spend $10 billion more for the cost of ownership over a 30 year period. Did he get those numbers as well as the difference in cost?

General **Pitman**. Yes, sir; he had these numbers. However, they are over the life cycle of the program and you are looking at a near term constrained budget. It became a matter of affordability in the near term as opposed to the long term.

Mr. **Dicks**. Do you think there is going to be a lot of money out in the future somewhere? I am not sure that I understand that.

General **Pitman**. No, sir, but if you don't have to pay today——

Mr. **Dicks**. But you have to pay tomorrow.

You have to get 6,000 Marines to run these helicopters; is that correct?

General **Pitman**. Yes, sir. We would have to maintain the increased number of helicopters to make up for the lift loss in the V-22 decision.

V-22 CONTINUATION

Mr. **Dicks**. I understand that the Navy met last week with involved contractors with respect to what may be needed to continue work on the V-22 program through fiscal year 1989 in order to avoid a disruption if the Congress chooses to restore this program.

In Navy estimates, how much additional money is needed in order to sustain the R&D program at current levels through the rest of the fiscal year?

Admiral **Wilkinson**. According to the contract, we don't owe the contractor any more money for the rest of the fiscal year. The contractor disagrees with us on that and I believe his number, that his termination liabilities would increase by another $100 million to $150 million. According to the contract, we see no need to give him any additional money until the first of October.

Mr. DICKS. What is the contractor asking for in order to keep the program operational to the first of the fiscal year? They must have told you what they think they need?

Admiral WILKINSON. They would like about $130 million.

Mr. DICKS. This is the Boeing-Bell team; correct?

Admiral WILKINSON. Yes, sir.

Mr. DICKS. Don't we have some advanced procurement funds that have not yet been obligated?

Obviously, it wouldn't be obligated because of the Secretary's decision?

Admiral WILKINSON. We have advance procurement funds that had been obligated before the Secretary's decision. However, about $315 million of that would be available for deobligation.

Mr. DICKS. Deobligation?

Admiral WILKINSON. Yes, sir.

Mr. DICKS. In order to keep the program operating, you could switch $130 million of that $315 million into this program, couldn't you? Isn't that possible?

That money is available. It could be used if it was necessary to avoid a stop-work on this program?

Admiral WILKINSON. It could be used, if reprogrammed, but I repeat, we have no legal obligation to give them any more money until the first of October.

The contractor's problem is that he sees the program being killed and yet he is obligated to continue work. He is obviously reluctant to do that if it is going to cause him to lose money when the program is finally terminated.

Mr. DICKS. So what are you going to do?

Admiral WILKINSON. We are not going to do anything until we get some direction from the Secretary of Defense, sir.

Mr. DICKS. What led to the funding shortfall?

Admiral WILKINSON. The contractor has expended money a little faster than he had expected, plus I think he was thinking that he could accept termination liability over what we had obligated with the continuing program, because there was money in fiscal 1991 and 1992 that would finally make him even.

Mr. DICKS. If a decision had not been made by the Secretary to cancel the program, is it reasonable to assume the Navy would be submitting a reprogramming to sustain V-22 efforts?

Admiral WILKINSON. No, sir.

If the decision had not been made to cancel?

Mr. DICKS. Yes.

Admiral WILKINSON. It would not be necessary. We would have continued the program as the current contract calls for.

Mr. DICKS. So even though there is a funding shortfall, you are saying the Navy would not have requested a reprogramming to keep the program going?

Admiral WILKINSON. We would have no requirement to do that, sir.

Mr. DICKS. This happens all the time. Sometimes the contractor overspends or we have overruns or this or that and you come here all the time and ask us for more money in order to keep programs operational.

That happens all the time, doesn't it, Admiral?

Admiral **Wilkinson**. Yes, sir.

Mr. **Dicks**. A lot of shipbuilding programs have this situation. So this is not an unusual situation.

Admiral **Wilkinson**. No, except that we have a contract that says he does not get any more money until 1 October, that is the difference.

Mr. **Dicks**. I have additional questions on this subject that I will submit for the record.

[Clerk's note.—Questions submitted by Mr. Dicks and the answers thereto follow:]

FIVE YEAR PROCUREMENT PLAN

Question. Every year we are presented with a five year aircraft procurement plan that dramatically increases numbers of aircraft to be procured in the out years. And every year when we compare this current year to prior five year plans for that year there are major cuts.

This year's Reagan budget was no exception. Aircraft funding totals would go from 192 in FY 1990 and increase each year to a total of 346 by FY 1994, or an increase of 80 percent. And this does not even include the classified number of A-12s which will be introduced in this period.

For the record, please provide a dollar figure associated with each year of the Reagan five year acquisition program.

Answer. The information follows:

PRESIDENT'S (REAGAN) APN BUDGET SUBMISSION JAN. 31, 1989

[In millions of dollars]

Platform	Fiscal year 1990		Fiscal year 1991		Fiscal year 1992		Fiscal year 1993		Fiscal year 1994	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
EA-6B(R)	0	$130	3	$343	9	$540	12	$422	12	$350
AV-8B	24	491	24	455	0	0	0	0	0	0
F-14D	18	1,136	24	1,272	36	1,710	60	2,508	72	2,856
F/A-18	72	2,577	72	2,079	72	1,816	72	1,843	72	1,725
CH/MH-53	3	62	0	0	0	0	0	0	0	0
V-22	12	1,267	24	1,540	45	1,915	54	2,017	58	1,826
SH-60B	6	187	6	141	12	214	12	211	12	220
SH-60F	18	284	18	267	12	165	12	167	12	175
LRAACA	0	0	0	20	3	330	8	602	15	762
E-2C	4	486	9	424	9	431	9	383	9	356
T-44A	5	12	0	0	0	0	0	0	0	0
T-45	24	417	48	604	48	607	48	605	48	601
Total 1-4	192	8,253	236	8,571	266	9,527	323	11,735	346	11,881
APN-5		601		753		876		973		1,101

PRESIDENT'S (REAGAN) APN BUDGET SUBMISSION JAN. 31, 1989—Continued

[In millions of dollars]

Platform	Fiscal year 1990		Fiscal year 1991		Fiscal year 1992		Fiscal year 1993		Fiscal year 1994	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
APN-6		1,373		1,453		1,687		2,890		3,068
APN-7		557		592		624		692		706
Total APN	192	10,784	236	11,369	266	12,714	323	16,290	346	16,756

Notes.—(1) EA-6B(R) are remanufacture A/C only. (2) F-14D(R)s are 12 new production A/C per year. The rest are remanufactures, (3) Multi-year contracts for: F/A-18 (72/Yr) E-2C (9/Yr: 1991-1994).

REVISED PRESIDENT'S (BUSH) APN BUDGET SUBMISSION APR. 28, 1989

[Dollar amounts in millions]

Platform	Fiscal year 1990		Fiscal year 1991		Fiscal year 1992		Fiscal year 1993		Fiscal year 1994	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
EA-6B(R)	0	$130	3	$343	9	$540	12	$422	12	$350
AV-8B	24	491	24	455	0	0	0	0	0	0
F-14D	6	771	12	803	24	1,225	48	2,005	60	2,322
F/A-18	66	2,421	66	2,005	66	1,939	66	1,765	66	1,685
CH/MH-53	23	411	23	424	23	421	23	406	23	401
V-22	0	0	0	0	0	0	0	0	0	0
SH-60B	6	187	6	141	12	214	12	211	12	220
SH-60F	0	79	18	267	12	165	12	167	12	175
LRAACA	0	0	0	20	3	330	8	602	15	762
E-2C	4	486	9	424	9	431	9	383	9	356
T-44A	5	12	0	0	0	0	0	0	0	0
T-45	0	153	24	432	48	678	48	660	48	684
HH-60	0	0	0	0	0	0	0	22	6	151
Total 1-4	140	6,345	193	6,740	222	7,823	280	10,016	341	10,437
APN-5		601		753		876		973		1,101
APN-6		1,323		1,433		1,515		1,550		1,902
APN-7		557		592		624		692		706
Total APN	140	8,826	193	9,518	222	10,838	280	13,231	341	14,146

Notes.—(1) EA-6B(R)s and F-14D(R)s are remanufactures only. (2) Multi-year contracts for: (2) F/A-18 (66/Yr), E-2C (9/Yr: 1991-1994).

Question. Is the increased funding associated with the out years of the five year program as previously submitted based on the assumption of substantial increases in overall defense spending or will this account increase while other accounts are being reduced?

Answer. The recent Revised FY 1990/1991 President's Budget Submission (President Bush) has had a significant impact on Naval Aviation from the original President's Budget Submit (President Reagan). Since the original budget submit there have been major changes to force structure (i.e. early retirement of the Coral Sea).

As a result the future funding profile is presently under review, however as always the budget will present a balanced and affordable profile.

Question. Have you revised the five year program to reflect the decision to terminate the V-22 and F-14D program and offset it with additional SH-60 and H-53 production? If not, when will a new five year plan be available? When it is please provide a copy to the Committee, including costs associated with each year's program.

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Question. If a decision were made to hold the dollar figure for the aircraft procurement plan constant over the next five years, in your personal and professional opinion, what options would have to be looked at in order to adjust to those fiscal circumstances?

Answer. A constant procurement plan over the next five years will cause hard decisions and cancellation of solid programs. The loss of new aircraft and technology will seriously impact the capability of the Navy to respond in time of national conflict.

V-22 OSPREY AIRCRAFT

Question. Has there been any direction given to the Department of the Navy in view of DEPSECDEF Atwood's testimony before the Senate Appropriations Committee last week that DOD was studying several program options?

Answer. No specific direction has been given to the Department of Navy by DEPSECDEF with regards to studying several program options.

Question. How much dollar funding in FY 1990 could be "recaptured" from proposed alternatives to V-22, and be restored to V-22 for RDT&E and Procurement?

Answer. The funding which could be "recaptured" from the proposed alternatives to the V-22 are as follows:

RDT&E: $51.0 million from the CH-60.

Procurement: $383.0 million from the CH-53E ($349 million procurement/$34 million spares).

Total program: $434.0 million.

Question. From a technological risk standpoint, how would you evaluate the V-22 program when it began and today.

Answer. At the beginning, overall program risk was assessed as medium. As of today, program risk is assessed as low to medium.

Question. How do you respond to concerns expressed by some that the mission of V-22 is too narrow to justify the cost of the program?

Answer. The V-22's versatility permits application to a wide spectrum of varying missions. The original basic program was designed to meet the following mission requirements for the four Services:

Marine Corps: Assault medium lift, national executive transport.

Navy: Combat rescue and special warfare logistics.

Air Force: Special operations.

Army: Tactical mobility.

No less than 26 mission applications were documented in a memorandum forwarded to Congress in January 1984.

In fact, "amphibious assault" is not a narrow mission in itself. It covers a broad spectrum of conflict in a global arena. The V-22 would also have been used to support Marines in any sustained conflict as well as special operations. The speed and range of the V-22 optimize the advantage of "maneuver" to avoid opposed frontal assaults and increase the individual Marine's chances of survival and success in combat.

Question. During discussions of alternatives to the V-22 there has been a lot of talk about using dual slings on the CH-53E to reduce the number of CH-53s required. Would you explain what "dual sling" means and give us your personal assessment on the soundness of this idea?

Answer. The dual sling load refers to carrying two (2) High Mobility Multipurpose Wheeled Vehicle's (HMMWV's) externally using the two point cargo hook suspension system of the CH-53E. The two HMMWV's are connected at the rear bumpers to stabilize the load. Using two independent cargo slings, the vehicle weights are distributed to the forward and aft cargo hooks on the CH-53E. The dual HMMWV load is within the capabilities of the CH-53E and carrying two HMMWV's would be satisfactory under administrative conditions. However, during amphibious assaults in the ship to shore movement the carrying of two HMMWV's is not tactically sound. The time required to rig and de-rig the HMMWV's would tie up flight deck space, reduce tactical flexibility, and increase exposure time and vulnerability. The concept of dual sling loading the HMMWV has not been fully developed and operationally tested. It does not have tactical application and therefore the Marine Corps is not considering tactically employing it at this time.

Question. If the V-22 were restored to the DOD budget, what would be a realistic approach—a simple restoration of the FY 90/91 budget request or a restructured program?

Answer. The Revised Budget contained no request for the V-22 program and subsequent program developments may influence the manner in which the program could be restored. If Congress were to restore the program, then the most realistic approach would be to review the current status of contractor effort, flight test results, and resource availability prior to making a decision on how best to continue the program.

Question. Is the Department of the Navy willing to request the reprogramming of any of the FY 1989 V-22 long lead procurement funding to continue the R&D effort through the end of FY 1989?

Answer. No. The FY 1989 V-22 R&D contract is a firm fixed price contract. Therefore, no additional funding is required to continue the R&D effort through the end of FY 1989.

Question. The V-22 flew for the first time on March 19th, and the first phase of the flight test program has been completed. Please give us your assessment of the flight test program thus far, and also when you anticipate complete conversion from the vertical mode to horizontal mode of flight?

Answer. The flight test program has progressed extremely well since that first flight on March 19th. Aircraft One has successfully flown a total of nine times and additional instrumentation is currently being added to the aircraft in preparation for flight in the fixed-wing mode. Anticipate full conversion to the fixed-wing mode by end of July. By the end of September we expect four more FSD aircraft to be flying and the flight envelope will have been expanded to 1,000 ft. altitude, 250 knots, and 2 G's.

[CLERK'S NOTE.—End of questions submitted by Mr. Dicks.]

OVERSEAS BASES

Mr. DICKS. Mr. Wilson.

Mr. WILSON. Thank you. Admiral Dunn, I am not going to talk about cancelled programs. I want to ask you some general questions about strategy. I agree with the things that the Chairman said earlier, that you agreed with, concerning the necessity to maintain quality and to maintain the readiness momentum we have as a result of pretty good funding for the last few years. I think that is more important than force structure.

I think we all understand that certainly there is nobody who is a stronger proponent of appropriations for the Navy than I am, but I think we all understand the budget constraints and that we are going to operate with the same amount of money for the next few years.

Given that, it seems to me rather than sacrifice readiness or quality of percentage, doesn't it make more sense to look at what purpose the Navy base in the Philippines, for instance, serves that is absolutely a necessity for our security and for your mission?

Admiral DUNN. Well, we have quite an installation there with Clark Air Base as a logistics point, therefore, a support block for MAC and an air logistics terminal. At Subic Bay, we have a Naval base complete with a Naval air station. Our deploying carriers use it for refreshing the air wings. We also use Subic Bay for maintenance of ships and aircraft. If we didn't have it, we would have to go to more of a seabased support or fall back to somewhere else other than the Philippines.

Mr. WILSON. The question is why do we need carrier task forces in the Far East? Why do we need carrier task forces around the Philippines or in the sea of Japan or in the South Pacific?

Admiral DUNN. Because of the strategy of the United States, forward strategy.

Mr. WILSON. A warfighting strategy with the Soviet Union——

Admiral DUNN. Yes, but also to further the interests of the United States in the Third World.

I believe we are interested in stability. Successive administrations have said we want to keep our forces postured for quick reaction and if we can't shore base forces or land base forces, we have the sea-based forces which can give us that sort of quick reaction.

Mr. WILSON. Let's say that we pull back and that Hawaii was our principal Eastern base. Give me a scenario of what could go terribly wrong if we didn't have the carriers near Asia, that we couldn't get them there in time to deal with an emergency. I don't think the Soviets could invade Japan before we could get there.

Admiral DUNN. My personal opinion, I don't think the Soviets are the immediate problem. They may be a problem downstream. The immediate problems are some of the other nations in the world, other individuals who are in a position of leadership in the world who would cause problems and are inimical to the interests of the United States. The command authority might want some sort of military show of force, perhaps our intervention.

It is the sea-based forces, mostly tactical air, but also the Marines supported by sea-based tactical air, which are ready to respond while ensuring the stability and interests of the United States, that's what we are looking for.

Mr. WILSON. Pretty vague to me, Admiral.

It would be nice to be totally ready anywhere in the world for anything and to be able to overcome any threat, any time, anywhere, but given a choice between research and development and readiness and all the rest, and this forward positioning of forces for some sort of vague threat that nobody can articulate very well, which way would you go?

I remember times when we ran the ships, just absolutely all out exhausted the crews, had terrible retention rates because they never got home, no spare parts, it just wasn't a good situation.

It seems to me that we are going to be faced with that choice again and my tendency is to pull back.

Admiral DUNN. I agree with you that we must maintain readiness and quality, but we must also maintain some sort of forward disposition.

That can be island, or land-based or sea-based, but we have to be there because of the time involved. For example, it takes three weeks for a ship to go from Hawaii to Cubi Point. It is a long way. We may not want to wait three weeks to react.

Mr. WILSON. Cubi Point?

Admiral DUNN. Subic Bay in the Philippines.

Mr. WILSON. What responsibility does the United States have to Subic?

Admiral DUNN. I think we have a responsibility to ourselves, to the United States of America. We Americans have a responsibility. We are the leading nation in the world. It is in our interest, and in the interest of the world, to be able to operate in support of our allies on short notice anywhere around the world.

Mr. WILSON. I don't think these questions are going to go away.

Admiral DUNN. No, sir; they are not.

Mr. WILSON. I think it is important for us to talk about the strategy with you as well as to talk about F-14D's.

Admiral DUNN. I agree. We have a thing that has been published called the Maritime Strategy, but there is one thing that is really good in the Maritime Strategy, where it shows a graph depicting the spectrum of conflict from peacetime up to full-scale war with the Soviets.

We must somehow ensure that we keep that spectrum of conflict down at the lower level by intervening, by deterring, or by our presence, we will keep that spectrum of conflict from escalating. It is Naval forces that have the mobility, global reach, and flexibility that can reach out and do what has to be done independent of land bases and over flight rights.

Mr. WILSON. Let me close by saying that if, for instance, budgetary constraints force us to pare the forces to 12 instead of 15 carriers, I think it would be much more in the interest of our security to have those 12 carriers of well-trained, well-supplied, quality personnel covering less geographic area than to try to stretch them too thin, cover too much and sacrifice everything else.

Admiral DUNN. I have to agree with you. You must understand—we must all understand there is increased risk with that. We won't be able to respond as quickly as we might otherwise be asked to do.

AH-1 HELICOPTERS FOR RESERVES

Mr. DICKS. Mr. Young.

Mr. YOUNG. Thank you, Mr. Chairman.

General Pitman, I would like to start with you, if I might, and talk about the reserve program. Nothwithstanding the KC-130 program that is now under way, what is the most critical need of Marine Reserves?

General PITMAN. In addition to the KC-130?

Mr. YOUNG. Yes, sir.

General PITMAN. Our next area of concern would be the Cobras, the AH-1Ws which would be the replacement for the AH-1Js we currently have in our reserve force. Our AH-1Js are Vietnam-era aircraft. While capable in that situation, they are not anti-armor capable. We are hoping to replace them as funding becomes available in the out years.

Mr. YOUNG. Under the present plans, are there any AH-1Ws going to the reservists?

General PITMAN. Not at the present time. We will have 115 aircraft when the program is complete. We procured 78 new aircraft and converted 37 additional aircraft to fill out our active inventory to maintain a 72 Primary Aircraft Authorized, PAA, force. So we don't have extra aircraft to put into the Marine Corps Reserve at this time.

Mr. YOUNG. How many would you like to see in the reserve squadrons?

General PITMAN. We currently have a requirement for two squadrons of 12 aircraft each, plus pipeline and attrition aircraft to maintain the force level.

Mr. YOUNG. If you had your way, would you have those 26 aircraft now or in the out years? What would be an economical production rate for those aircraft?

General PITMAN. Looking at what we have been able to do in the past, anywhere from six to 12 per year would be a reasonable rate.

Mr. YOUNG. Those six to 12 are not included in this budget request at this time, are they?

General PITMAN. No, sir.

Mr. YOUNG. How critical would you consider the Cobra modernization for your reserve units to meet any possible contingencies?

General PITMAN. Given the sophisticated weapons which most Third World countries have today, including armor and surface-to-air weapons, we believe the Marine Corps Reserve is vital to our total force concept and they are going to need the newer aircraft to operate in a highly hostile environment. They should be able to carry the weapons they need to and do the job they must do.

Mr. YOUNG. You mentioned the Vietnam vintage of the Cobras. How old is that technology and how old are those aircraft?

General PITMAN. They are both twin engine versions with the average age of the AH-1Js over 17 years. The AH-1Js don't carry the latest missile systems. They have the 20mm cannon for self defense. They are not capable of firing the Hellfire, SIDEARM or TOW missiles and have no precision air-to-air capability.

Mr. YOUNG. In most of the contingencies you would be prepared for, how many of those contingency plans would include the use of the reserve squadrons?

General PITMAN. All of our major contingencies. Obviously, if we are conducting a smaller operation, we would not be calling on the Reserves. We have a quite capable active force. But if they are to be committed at all, which they are in all major war plans, whether in the Western or Eastern area, the Reserves would require that kind of capability.

Mr. YOUNG. So the reserve Cobra squadrons are critical to the Marine Corps' planning?

General PITMAN. Yes, sir, very definitely. We do not have enough Cobras in our active force to fill our requirements for attack helicopters.

Mr. YOUNG. Would you just provide for the record a list of all your reserve aviation requirements?

General PITMAN. Yes, sir, I will.

Mr. YOUNG. Thank you very much.

[The information follows:]

The primary reserve aviation requirements are: Additional KC-130T aircraft, new AH-1W helicopters, AV-8B's, flight simulators, additional TAOM's.

F-14 ENGINES

Mr. YOUNG. I am interested in the discussions about the F-14D. I want to make sure that I understand correctly the issue of the reengining of the F-14.

As you know, this committee has played an active role in supporting your efforts to get rid of the TF-30 engines and to replace them with the new engines, and I am curious as to what effect these budget changes will have on the reengining program.

Admiral DUNN. No effect. We are proceeding with converting 70 F-14s to the A-plus configuration, which is the GE F-110-400 engine. It is working well.

Mr. YOUNG. I am glad to hear that. When I saw the changes, I was worried.

Admiral DUNN. It is a very important program.

AIRCRAFT LOSSES

Mr. YOUNG. I was interested also in your loss record, 48 aircraft losses this year, 73 the year before. Can you give us any reason why the improvement in the loss ratios?

Admiral DUNN. Yes, sir. There are several reasons. The most basic reason is that we have had adequate funding in recent years, adequate funding to recruit the right people, train them properly with adequate number of spares and flying hours.

There have been other reasons, leadership not the least among them. Our field leaders are insisting on air discipline to an extent they didn't insist in the past, at least not at all times, the people are out there commanding the squadrons and air wings are doing a much better job than General Pitman, Admiral Wilkinson and I did.

V-22 COMPARED TO CH-53 AND CH-60

Mr. **YOUNG**. I think you all did a good job. You are modest to say that.

Now, let me go back to a subject that we have covered fairly well this afternoon already, and that is the question of the V-22. I think you can get the feeling from this committee that there is considerable interest in this program. As a matter of fact, just a few days ago a group of us met with the President and that meeting had nothing at all to do with national defense issues, but for some reason the question of the V-22 and the Secretary's decision was brought into that meeting and was discussed at length.

I understand how the game is played and what the rules are and you are here defending the budget that is presented by the Secretary of Defense, but sometimes, and he is a good friend of all of us, but sometimes we may be heading into a disagreement on the question of the V-22.

I know over the years I have had the opportunity to question the witnesses about the V-22, and the importance of it, and I have heard nothing but the strongest comments as to the needs of this new capability and the fact that it was something that we just had to have.

As I look back through some of the testimony that was presented, I am convinced also that the V-22 is something that really ought to have a second look before the programs are terminated, and my first question on that subject is whether or not there is any review or reconsideration of the figures that went into making the decision.

Is there any question in anyone's mind about the accuracy of the figures? Has everything been taken into consideration as far as long-range costs that should have been considered when a decision like this was made, or is anyone looking at all today from the standpoint of dollars?

Admiral **DUNN**. Those decisions were made at the Office of the Secretary of Defense level, and I don't believe any of us here were privy to all of the figures that were massaged as this decision was being made. To my knowledge, nobody is reviewing those figures at this time.

The problem, though, Congressman, is that the money that was earmarked for the V-22 is now out of the budget, and if you were to ask me where to find the money to fix the V-22 out of naval aviation programs, I would have to tell you that I don't have anything of lesser priority that I could ask you to substitute for.

Mr. **YOUNG**. I understand that, and I wouldn't put you on the spot and ask you to respond to that kind of an issue anyway.

What I am thinking about is the long-range cost, the attrition of the vehicles, for example.

We know that you are going to have to bring your ships in closer to shore. You don't have the over-the-horizon capability with the CH-53 and the CH-60 mix, so you are going to be more vulnerable.

The attrition rate has got to be higher, and when you talk about attrition rate, you are not only talking about the aircraft and its crew, but whatever its cargo is, whether it is men or material.

Do you know whether they were considered or not in making this decision?

Admiral DUNN. I do not know that. I don't know.

General PITMAN. Yes, sir, peacetime attrition only was considered in a hurried context of trying to come up with a defense budget. Some prepared figures were used from past studies. We participated in that analysis I believe the Commandant has testified that while we agree with the decision the Secretary made based on the information he had available to him, we do not agree with the figures since, we believe, all relevant costs were not considered.

Combat attrition to the best of my knowledge, was not addressed. It was not in any of the information we saw. However, normal peacetime attrition of the aircraft was included.

Mr. YOUNG. Let me ask a specific question on that. I am aware of a study that was done by the Secretary of the Navy that showed that during six months of sustained combat, Marines would lose three times as many air crews using the CH-60 rather than the V-22, and you can multiply that by combat troops carried in the aircraft. I am wondering, do you know whether that study was taken into consideration when the Secretary of Defense made his decision?

General PITMAN. I think that the decision was more a budgetary one sir. That study was available to the Office of the Secretary of Defense, and was well known to their analysts.

Mr. YOUNG. General, the CH-53 was not designed as a combat assault aircraft, was it?

General PITMAN. No, sir, it was not. It is a logistics aircraft, designed to lift heavy cargo and equipment, not carry troops in the assault wave.

Mr. YOUNG. So its vulnerability is obvious, I would expect.

General PITMAN. Yes, sir. It is still a good aircraft. However, its size, and its relatively low speed hinders it as a troop carrier. Additionally, it was not designed with a crash-worthy fuel system that our troop lift helicopters and many of our other combat aircraft are equipped with.

Mr. DICKS. Isn't the Soviet threat getting more difficult? Not easier certainly. That has got to be a problem, too.

General PITMAN. That is correct. First of all, not just the Soviet threat, but in every Third World country now, you can purchase sophisticated weapons. The Afghan rebels have them. Everyone that wants one, and has the dollars, can get a surface-to-air missile.

Mr. YOUNG. General, what about maintaining the CH-53 and CH-60s versus maintaining the V-22 force to do the same job? What is the difference in the maintenance man-hours needed for the CH-53, CH-60 versus the V-22?

General PITMAN. I would have to provide that for the record, but there will be more of them, so the comparison is not a direct one.

The CH-53E requires considerably more maintenance man hours than are envisioned for the V-22. It is a mix of numbers that I would have to provide.

[The information follows:]

The Marine Corps does not operate the H-60. I can only provide the Navy's Direct Maintenance Man Hour/Flight Hour (DMVH/FH) for the SH-60B. It was 18.1 for FY 88 which included both the intermediate and organizational level. The Marine Corps figures for the CH-53E in FY 1988 was 27.0. The Navy Air Systems Command projects and the contract specifies that the MV-22 maintenance man hours will be 5.5 DMVH/FH. This figure includes organizational level maintenance, design controllable failures only. The Naval Air Systems Command estimates that, at system maturity (60,000 hours), DMVH/FH will be 11.6 hours, which includes all operational and intermediate level maintenance. As you can see, the newer technology is projected to greatly increase reliability and maintainability, and reduce direct maintenance manhours.

Mr. YOUNG. Since there would be requirements for many more CH-60s, what does that say about the number of ships required to be used in the force or the lining up of ships to get themselves in position for their combat mission? What does that say about the number of ships needed?

General PITMAN. The Marine Corps and Department of the Navy believe there will be a requirement for a considerable number of additional deck spots which would require more amphibious ships.

Mr. YOUNG. Do we have the ships?

General PITMAN. Sir, they are not in the budget.

We have other missions, besides ship-to-shore missions, for Marines that are not involved in the assault phase. The amphibious ships can make more than one trip, so there is a way to work around the deck spot shortfall. I am not saying it cannot be done.

Mr. YOUNG. I understand, and I apologize for asking you to answer questions that might not be compatible with the Secretary's decision here, but our job is to make sure you have what is the most effective, cost-effective way of getting your job done, and that may mean we have to disagree with the Secretary on occasion, but we understand and appreciate your openness.

I have a number of other specific questions on the subject.

General PITMAN. I might add one thing. I watched the Secretary's testimony and he was asked to provide those numbers for the committee, which I am sure he is going to do.

Mr. DICKS. Would those be the Marine Corps' analysis?

General PITMAN. We were in agreement with most of the numbers in that study. We had some additional costs that we did not think had been considered. We worked together on this analysis. I don't want to suggest that we weren't involved in the analysis.

Mr. DICKS. Why did you lose then?

General PITMAN. We were unable to make a convincing case is the way I would have to put it.

Mr. YOUNG. When I asked about a review of the dollars, the figures and all of the out-year costs, I was concerned about the attrition rates. I was concerned about the deck spots, the number of ships needed, the maintenance manhours, the survivability and everything, and it just looks to me when you add them up on one hand and add up the V-22 record on the other hand, it seems to me we should be proceeding with the most effective way to do the job rather than a make-do situation.

Thank you very much.

Thank you, Mr. Chairman.

CH-53E REQUIREMENTS

Mr. **Dicks**. Mr. Sabo.

Mr. **Sabo**. Thank you, Mr. Chairman. And welcome.

Let me ask a related question but from a different point of view. My sense is that there is a good chance that V-22 will be continued in some fashion by the Congress. Assuming that is the case, what are your requirements for the CH-53E heavy lift helicopter? Does your need for them disappear or do you have continuing need for them regardless of the decision on the V-22?

General **Pitman**. We still have a requirement for 191 CH-53E aircraft to meet our requirements through the 20 year life cycle of the aircraft.

Mr. **Sabo**. How many do you have now?

General **Pitman**. In the budget including the procurement of 23 this year we will have 125. So we will be 66 short of our total requirement.

Mr. **Sabo**. And how many do you have in the budget again, 125?

General **Pitman**. Yes, sir, 125 including the 23 that are in the budget before you today.

Mr. **Sabo**. And how many of those 23 were contingent on the V-22 cancelation? About 20?

General **Pitman**. Yes, sir.

Mr. **Sabo**. Was it a real projection of your need of the ——

General **Pitman**. No, sir, that was all the funds we had available given overall budget constraints. The three aircraft were tied in with a proposed buy by one of our allies that would allow almost a reasonable production rate.

Mr. **Sabo**. What is a reasonable production rate?

General **Pitman**. Fourteen a year would be reasonable. I might defer to Admiral Wilkinson. We were producing 14 a year in our final multi-year buy, which ended in 1989. Of course, that multi-year buy covered a four year period and saved $98.2 million over an annual procurement rate.

Admiral **Dunn**. All of these numbers that we are using—address the CH-53 Marine Corps requirement. The Navy has requirements for 28 MH-53E minesweepers, of which we have 24. So those figures must be added in there.

Mr. **Sabo**. Haven't we provided advance procurement funds for a multi-year contract last year?

General **Pitman**. Yes, $46 million was provided last year. It was planned to use that money on advance procurement for a fiscal year 1990 buy.

Mr. **Sabo**. But you are on single-year production now?

General **Pitman**. Yes, beginning in fiscal year 1990.

Mr. **Sabo**. How much do you save on multi-year procurement?

General **Pitman**. I would defer to NAVAIR. We saved $98.2 million in our last multi-year program, but that was a four year program.

Mr. **Sabo**. How many was that per year?

General **Pitman**. We procured 14 aircraft per year over four years, with approximately a 12 percent savings over the four years.

Admiral **Wilkinson**. We used ten percent as a good estimate. Twenty-four a year is our economic rate for the CH-53.

Mr. SABO. Thank you.

FUTURE AIRCRAFT SUPPORT

Mr. DICKS. Mr. Miller.

Mr. MILLER. In a December 2, 1988, memo from Navy Secretary Ball to Secretary Taft, Mr. Ball indicated it might be 20 years before the A-12 is fully developed and operational. How will the Navy manage the shortfall in aircraft if the A-12 won't be ready for 20 years and if we continue to buy current Navy aircraft at uneconomical rates?

Admiral DUNN. The A-12 is a replacement for the A-6 and we are short of requirements on A-6s. I believe that Mr. Ball was talking about the full operational capability of the A-12 in that memo.

The initial operational capability will be much sooner than that. As soon as the A-12 begins coming into the fleet, we will begin remedying the shortfall we have in A-6 aircraft.

Mr. MILLER. I noticed by the statements made that we have numerous different types of aircraft. General Pitman, you have about four types of helicopters alone, the heavy lift CH-53, medium lift CH-46, the attack AH-1W and utility UH-1N.

I am wondering if there is any way to consolidate the number and type of aircraft in the inventory, and between the services? Fewer types of aircraft would seem to make for easier and improved logistical support and maintenance. It might even require fewer support personnel. What are your thoughts?

Admiral DUNN. Sir, if I may, I would like to try to answer that. Naval aviation, that includes both the Navy and Marine Corps have a long-term strategy of necking down the series for the very reason that you spoke to. Over the years, we have grown these specialized aircraft because technology didn't allow us to perform all of the missions with one aircraft, but technology is now improving to the extent where we foresee the day when we can get down to let's say four different types of aircraft on an aircraft carrier as opposed to seven. Marines can get down to far fewer types of helicopters. We are not there today, but our plans are to go in that direction.

Now, as far as the Marines' helicopters are concerned, I would like to point out that at least in three of those helicopters, the Navy also flies that same model, the H-46, and the UH-1N and so we have commonality between the Navy and the Marine Corps and we are attempting to ameliorate this problem with spares and training and the rest of the logistics but it is not a short-term problem.

General PITMAN. I might also add we have looked very closely at helicopters being developed by the Army. The Cobra that we have is very similar to the earlier models they had. They have switched over to the Apache and we have looked very closely at it to see if there was some possibility of using it aboard ship. But, it is quite a different aircraft and would require considerable research and development to meet Marine Corps requirements.

We are also closely monitoring their LHX program. We are very interested in seeing how it develops. We are not sure how it will fulfill our needs, but if it is as good as they believe it is going to be, we will be interested.

The Army, as you know, was initially in the V-22 program, as were all the Services. They had to back out, for fiscal reasons about two years ago. So I believe there is an honest effort on the part of the Services to try to work together.

Mr. MILLER. Well, I am glad to hear that it is an honest effort, because there seems to be a long list of different types of aircraft that we hear about when we cover all of the services. But again the technology is such that we will be able to consolidate in the future, I hope so. At least you feel you are working in that direction?

General PITMAN. Yes, sir.

FLYING HOURS

Mr. MILLER. Admiral Dunn, I notice your statement mentions aviator retention.

Apparently the average crew flies 25 hours per month, yet most aviators would say 30 to 40 hours per month in a Navy tactical aircraft would satisfy their flight desires.

Obviously they want to fly as many hours as possible, but do you feel that the 25 hours per month could be cut some?

Admiral DUNN. No, sir. Twenty-five hours a month is the absolute minimum. That is the absolute minimum for readiness and pilot retention. If we go any less, we will see the accident rate go up and the readiness figures fall. If we can afford it, we should have more flying hours. The problem with the 25 hour figure, and this does vary by the type model series you are talking about, but this 25 hour figure is a good average for how much a pilot gets. When our squadrons are forward deployed in the Mediterranean, the Western Pacific and Indian Ocean, they fly more than 25 hours. When they are training to deploy, they fly more than 25 hours.

Consequently, to balance the books when they are back home, they fly much less than 25 hours, sometimes barely four to six hours per month. When a pilot sits around the ready room doing paper work or such, that is when he gets time on his hands and decides too often to go someplace where he can fly regularly, even if it is less exciting, and he goes to the airlines.

Mr. MILLER. So you don't feel that we are holding that 25 hours up as a carrot to keep the pilots from the airlines?

Admiral DUNN. No sir, that is not a carrot. A carrot would be that 35 or 40 hours a month. I am not requesting that, although if you have some spare operating dollars, we could use it.

Mr. MILLER. Very good. Thank you.

Thank you, Mr. Chairman.

CARRIER AIRWING REQUIREMENTS

Mr. DICKS. The gentleman is welcome.

In January, 1989, the Secretary of the Navy submitted a report on naval aviation requirements to the Secretary of Defense. That report was predicated on the near-term achievement of 15 deployable carriers and 15 carrier airwings.

The amended budget proposes retirement of the CORAL SEA and MIDWAY earlier than planned so that you will remain at 14 carriers until at least 1996.

How do your aircraft requirements change because of the change in carrier numbers?

Admiral DUNN. The aircraft requirements do not change because we remain at 15 air wings, 13 active and two reserve.

Mr. DICKS. Would you explain that?

Admiral DUNN. We will have 14 deployable carriers with the overhaul schedules we have. We have a need, a continuing need, for 13 active airways. If you recall we had begun standing up a tactical airwing, but because of budget constraints, we de-commissioned that airwing. The 13 active airwings matched with the 13 carriers we would have, exclusive of those normally in overhaul.

In the event of something more serious, we had the two reserves to call on. We are retaining 13 active despite the fact we are not going to achieve our 15 carriers as soon as we want.

Mr. DICKS. Before you only had one reserve airwing?

Admiral DUNN. No, sir, we have had two Reserve Carrier Airwings since 1970.

MEDIUM ATTACK AIRCRAFT

Mr. DICKS. Okay.

The January, 1989, budget included A-12 production through fiscal year of 1994 of ———.

What is the current A-12 procurement plan through fiscal year 1994?

Admiral DUNN. This is just a reminder. It is secret information at this time. ———.

Mr. DICKS. Why are they all in the out years? Should we ask Admiral Wilkinson?

Admiral WILKINSON. Actually, Mr. Chairman, that is about as fast as we can ramp up to production. I think ———.

Mr. DICKS. You think that is reasonable?

Admiral WILKINSON. Yes, sir.

Mr. DICKS. Under the original budget profile, the Navy's medium attack force would have been 75 percent A-12s and 25 percent A-6Es well beyond the year 2000.

How many A-6E aircraft will still be operating in fiscal year 2005 based on the amended budget plans?

Admiral DUNN. I believe we would have to supply that for the record, Mr. Dicks.

Mr. DICKS. Okay.

[CLERK'S NOTE.—Classified insert removed.]

Mr. DICKS. What modifications are planned for the A-6E to improve its survivability and ability to meet mid-1990s threat?

Admiral Dunn. We have a weapons improvement program in increments. Two of the increments have been funded and the others are in concept development. The first two improvements are in this budget request.

Mr. Dicks. The program to procure composite wings for A-6E aircraft began with great urgency over four years ago. The first flight of an aircraft with the new wing occurred on April 3, 1989. Could you provide us with a status report on the effort to re-wing the A-6E aircraft?

Admiral Wilkinson. Yes, sir. As you indicated, the wing is in test right now. We have one aircraft at Patuxent River. We expect a second flight test aircraft there this month. In the static testing, we have passed the most critical load test and evaluation of the data is ongoing. Fatigue testing should start this summer.

Mr. Dicks. What has gone wrong here? You have had problems. Can somebody explain what the problem has been?

Admiral Wilkinson. Yes, sir, the contractor was not building a quality wing initially. He has since turned around. He is back on schedule now. He has changed the whole quality outlook in Wichita, and we are quite pleased now with the product we are getting.

Mr. Dicks. Are the aircraft getting the new wings installed in conjunction with the system/weapons integration program installation?

Admiral Wilkinson. Yes, they are.

Mr. Dicks. What is the driving factor in the installation schedule? Is it wing deliveries, SWIP kit deliveries, or industrial capacity?

Admiral Wilkinson. I will have to get you that for the record. We are doing it in four places and we are going to be delivering new wings as fast as we can use them.

I will amplify that for the record.

[The information follows:]

With the current wing deliveries and contractor/organic industrial capacity, the driving factor is SWIP kit availability and delivery rate.

Mr. Dicks. How could the schedule be accelerated to get your grounded or restricted aircraft flying again?

Admiral Wilkinson. I will have to give you that for the record. I think we are going about it as fast as we can with those four sites.

[The information follows:]

The wings are being produced and delivered at about the maximum production rate without a substantial investment in additional production floor space and tooling. Our wing deliveries will surpass our demand because of installation kit availability within the next year. We have sufficient retrofit capacity to do installations; however the kit partz required for the installation are short of wing deliveries scheduled.

Mr. Dicks. So there is no way to——

Admiral Wilkinson. I will take a look, but I think we have the wings coming as fast as we can get them, and we are putting them on as fast as we can.

AIR ANTI-SUBMARINE WARFARE

Mr. Dicks. Admiral Dunn, last year you testified that there was a shortfall of 47 P-3 aircraft necessary to perform the Navy's ASW mission. And at that time the P-3 replacement aircraft—P-7A—was scheduled to begin production in fiscal year 1990. The amended budget we received two weeks ago includes retirement of 73 P-3 aircraft, the replacement P-7 does not begin production until fiscal year 1992, and there is no S-3 replacement planned for the near term. Given the P-3 aircraft retirements, the delay in P-7 procurement, and the S-3 situation, how is the committee to take seriously the Navy's commitment to air anti-submarine warfare?

Admiral Dunn. We are retiring some of the older and less capable P-3s, the P-3As, and some of the older P-3Bs as an affordabilities measure. The S-3s, you are absolutely right, are not being procured, but they are being upgraded with the S-3 Weapon System Improvement Program. Converting all the S-3As to -Bs have given a marked improvement in capability through the addition of Inverse Synthetic Aperture radar, improved acoustic processing and the capability of delivering Harpoon missiles.

At the same time, we are continuing to update our P-3s with update III avionics kits and of course the update IV which is being developed at this time by Boeing.

I know that we are concentrating on ASW. Air ASW is probably the most important ingredient in the Navy's ASW picture, and I don't feel that we have compromised it unacceptably by retiring older P-3 aircraft.

Mr. Dicks. If you were short 47 last year and you are retiring 73 this year, when I went to school that would add up to 120 short.

Admiral Dunn. Yes, sir.

Mr. Dicks. It might be a few less because we have taken delivery on a couple, but it is very close. How do we get the mission done if we have that few aircraft?

Admiral Dunn. We get the mission done through——

Mr. Dicks. Also we know there is an erosion in acoustic-detection capability.

Admiral Dunn. As far as the acoustic-detection capability is concerned, that has not diminished because we are retiring the less capable aircraft. The new more capable aircraft are still available to fly the mission.

Mr. Dicks. Can you fly them more?

Admiral Dunn. Some of the aircraft will be flying more so we will be using their service life a little faster.

On the other hand, given the present situation, the Soviets have not been as aggressive in deploying their submarines to the coast of the United States, therefore we have not had that much need to use our P-3s for tracking Soviet ballistic missile submarines, but yes we are taking a conscious risk as we await the development of the P-7.

Mr. Dicks. Is the Navy sending to Congress a signal it does not want to continue with an air ASW capability, and should we move what little money is dedicated to this effort into other aircraft programs?

Admiral **Dunn**. Absolutely not, no, sir. It is not a signal that you should withhold money.

Mr. **Dicks**. Why is the P-7, derived from the P-3, not starting production sooner?

Admiral **Dunn**. Again, it is an affordability issue. I wish we could start it sooner, but we have an orderly program.

Mr. **Dicks**. What is the cost going to be? You said last year less than $35 million per aircraft. What is it going to be now?

Admiral **Dunn**. I believe that cost is still the same. I will defer to my colleague.

Mr. **Dicks**. Mr. McDade.

Mr. **McDade**. If you will answer that question for the record.

Admiral **Wilkinson**. I would like to answer that for the record.

[The information follows:]

Due to the rephasing of the P-7A procurement plan, the average unit flyaway cost in constant fiscal year 1989 dollars has risen from approximately $35 million to $37 million.

F-14 SERVICE LIFE

Mr. **McDade**. To clear up our discussion of F-14D. 7,500 hours is the total life cycle of a new F-14D.

Admiral **Wilkinson**. The minimum life cycle remaining on a remanufactured F-14D is about a 10-year life.

Let me get back to you. I think it is between 3,000 and 4,000 hours.

[The information follows:]

The service life as designed is 6,000 hours. With currently planned modifications to the airframe, the airframe life will be extended to 7,500 hours. No aircraft will be remanufactured unless it has a minimum of 3,000 hours service life remaining which equates to 10 years. Most of the aircraft will have greater than 10 years of service life remaining at the time of remanufacture.

Mr. **McDade**. I have a number here, and tell me if you agree with it. By fiscal year 2000, there would be a shortfall of 66 F-14s. Is that an accurate number?

Admiral **Wilkinson**. That sounds pretty close, but again we will verify that.

[Clerk's note—Classified insert removed.]

T-45A GOSHAWK TESTING

Mr. **McDade**. Look at it and if you need to do it for the record, fix it up.

We are going to talk about GOSHAWK for a while—last fall the Director, Operational Test and Eyaluation reported that the T-45A was not operationally effective in the carrier environment in its current configuration due to safety deficiencies.

The contractor has told staff that a number of the identified deficiencies could have been corrected prior to production if more extensive testing had been performed during development. Rather than incurring the costs of additional testing, the contractor began production of an unsuitable aircraft. We are now faced with a one-year program delay and a disruption of the production line. In addition, the negative test report delayed a decision on the fiscal year 1989 production and the Government's priced option expired. The result is an expected price increase of about ten percent when production resumes.

The first question is, it looks as though neither party is served well by the fixed price development contract.

Would you agree with that?

Admiral WILKINSON. I would not agree at all.

Mr. McDADE. Tell us what happened. It sounds like the contractor under a fixed price contract went ahead and gave you the aircraft.

Admiral WILKINSON. The contractor produced an aircraft that was not fully capable of the carrier landing mission. We found out about it when we got into flight tests.

Mr. McDADE. You knew it before then, didn't you? Did you know that in R&D?

Admiral WILKINSON. We are still in R&D.

Mr. McDADE. But you had a fixed price on it, didn't you?

Admiral WILKINSON. Yes, we did.

Mr. McDADE. Which is now lost?

Admiral WILKINSON. For fiscal 1989, it is.

Mr. McDADE. Is there going to be an increase in cost when production is resumed?

Admiral WILKINSON. There will be.

Mr. McDADE. Could that not have been corrected prior to the option expiration, if we had a different sort of contract that would enable you to sit down and work out the differences. Apparently you think not.

Admiral WILKINSON. I really don't. We were surprised when the aircraft performed as poorly as it did. The contractor had been flying it. We didn't really know that we had these problems until we put Navy pilots in the aircraft. That is when our test pilots said we have a long way to go with this aircraft.

The contractor under the fixed-price contract is responsible for correcting those deficiencies and I must say in support of McDonnell Douglas, they have agreed to fix everything that is wrong with that aircraft.

Mr. McDADE. But it means you are going to pay more for it, won't you?

Admiral WILKINSON. We will pay more in production because there are some changes to be made to it.

Mr. McDADE. You will be paying about ten percent more.

Admiral WILKINSON. That is probably accurate.

Mr. McDADE. This committee has always wondered whether fixed-price R&D contracts were a suitable thing to engage in. And we hear here the contractor had some adverse information but because he was under fixed price, he didn't have the incentive to come to you and say, "Let's adjust this and work it out in R&D," and we end up paying more for the production price.

Admiral WILKINSON. We would have ended up paying more for production in any event, because there are some changes that will have to be made.

Mr. McDADE. Do you agree with that, Admiral?

Admiral DUNN. Yes, sir, I do agree with that.

Admiral WILKINSON. I was just going to say the fact we are going to make some changes to the very simple configuration that he offered will increase the production price and that would have happened whether we had been under a cost-type contract or a fixed price.

Mr. **McDade**. It wouldn't have been as much if you had gotten it in R&D.

Admiral **Wilkinson**. We got it as soon as we started flying the airplane.

Mr. **McDade**. You don't think there has been any cost savings to the Government if this had been a different type of contract.

Admiral **Wilkinson**. No, I think there would have been savings though, if the contractor had done a few more things up front.

Mr. **McDade**. Would a non-fixed-price contract have incentivised him to do that?

Admiral **Wilkinson**. I don't think so.

Mr. **McDade**. What is the cost to correct the deficienciese?

Admiral **Wilkinson**. We really don't know at this point, sir.

Mr. **McDade**. Do you have a ball park figure?

Admiral **Wilkinson**. I would say ten percent. That is probably correct. Ten percent of the aircraft. But I will verify that.

[The information follows:]

The cost to correct the deficiencies falls into two categories. The cost of design, development, and test the fixes, or the non-recurring costs, will be full scale development (FSD) costs. Since the FSD contract is firm fixed price these non-recurring costs will be born by the prime contractor. The cost to install the fixes in the production aircraft, or the recurring costs, will be the prime contractor's responsibility for the FY 1988 pilot production lot (12 aircraft). In all subsequent production lots the costs will be the government's responsibility. Our estimate of these costs for the 288 aircraft still to be procured is $253.8 million. This represents an increase of 5.6 percent in our total procurement cost.

Mr. **McDade**. What is the plan for fiscal year 1989 procurement including delivery schedules?

Admiral **Wilkinson**. For fiscal year 1989, we plan to stay at the pilot production rate, which is the rate we are at right now for fiscal year 1988 and that will slide the delivery of the fiscal 1989 lot over two years. That will give the contractor time to continue to test and give us an airplane that will satisfy the requirement.

Mr. **McDade**. What is the impact, of a one-year delay in the T-45 operating capability, for the fleet of T-2s and TA-4s currently out there?

Admiral **Dunn**. It is going to delay the stand up of the first squadron in Kingsville, Texas, by nine months providing there aren't any more slips and will require the expenditures of some funds in order to prolong the service life of both the T-2 and A-4.

Mr. **McDade**. Any idea how much?

Admiral **Wilkinson**. With the year's slip, it is not very much. If we go any further than that——

Mr. **McDade**. Ten percent, 12 percent, something like that you think?

Admiral **Wilkinson**. I will give you that for the record. I keep thinking it is $5 to $10 million.

Mr. **McDade**. Give us a figure for the record.

[The information follows:]

The delay in the T45TS program will require the training command to operate the T-2Cs and TA-4Js for an additional year. To accomplish this, some aircraft nearing the end of the service life must go through a standard program to extend their life. This extension will also require certain structural work, a Structural Improvement Program (SIP), to be performed. Our estimate for this work totals approximately $24 million.

EA-6B PROWLER INVENTORY

Mr. McDade. Let's talk about the EA-6B Prowler.

The Naval Aviation Requirements report of January, 1989, shows a dramatic shortfall of EA-6B electronic countermeasures aircraft in the near term, escalating to a 20 percent shortfall in 1996. The shortfall arises because there is no planned procurement beyond fiscal year 1989 to keep pace with retirements or attrition. What is happening here?

Why are you stopping the procurement program when you have such a large projected shortfall?

Admiral Dunn. It boils down to the affordability issue.

Mr. McDade. The program works well?

Admiral Dunn. It works well.

Mr. McDade. Nothing in your priority lists that you would change around?

Admiral Dunn. Not at this time, no. I would put that at the top of my unfunded priority list, however, for aircraft procurement.

Mr. McDade. If you would amplify that. Tell me why you would do that.

Admiral Dunn. Because the EA-6B, as you say, is short. We only have 110, and I believe the requirement figure is 147 in 1989 and, as you say, it gets worse as time goes on.

At the same time, the EA-6B is critical to the survivability of our forces should they have to go into combat. It is a very capable electronic warfare aircraft.

Mr. McDade. What kind of a number, if you had a chance to look at it, if you haven't, you can furnish it for the record, in the next fiscal year would be required to have a good economic buy of the plane?

Admiral Dunn. We will have to provide that.

Mr. McDade. For the record.

[The information follows:]

Twelve (12) EA-6B aircraft would be required in the next fiscal year to have a good economic buy.

Mr. McDade. To what extent do you think requirements are going to change as your carrier-based aircraft develop their own electronic contermeasures capability or take on stealth characteristics? Do you think there will be a change in the need?

Admiral Dunn. No, sir, we don't anticipate a change in the need for EA-6Bs. Our carrier wings are planned to be equipped with five EA-6s for each airwing on out through the turn of the century.

While the stealth characteristic of the A-12 and perhaps the NATF will provide us a great tactical advantage, there will still be scenarioes we have to go in not depending upon that stealth characteristic.

We need those aircraft.

Mr. McDade. What would be the cost of six aircraft of the ICAP-II configuration in fiscal year 1990, assuming the budget amendment business base at Grumman Aircraft Systems? Assuming the business base at Grumman after the scrub.

Admiral **Dunn**. Yes, sir. We don't have that. Let me provide that, please.

Mr. **McDade**. Put that in the record.

[The information follows:]

Procurement costs for six EA-6B aircraft of the ICAP II configuration in fiscal year 1990 are estimated to be around $345 million.

E-6A OPERATIONAL TESTING

Mr. **McDade**. On the E-6A, on February 16, 1989, the E-6A prototype lost portions of its vertical tail and the right horizontal stabilzer while on a test flight.

Do we know what caused the aircraft demage?

Admiral **Wilkinson**. Yes, I can answer that, sir.

The most likely cause was some kind of flutter situation where the tail got into resonance and broke. The horizontal tail damage was caused by the vertical tail breaking off and hitting the horizontal tip as it went by.

This aircraft has been through that flutter test point before so we don't really yet understand why it happened. There may have been some mechanical problem there, but regardless the contractor is going back into the flight tests this month and he will work up the whole flutter regime to verify that he has got it corrected.

Mr. **McDade**. Is introduction of the aircraft going to be delayed as a result of the incident?

Admiral **Wilkinson**. Yes, it will be.

Mr. **McDade**. Any idea of the length of the delay?

Admiral **Wilkinson**. We were supposted to accept the first aircraft at the end of April. I think it will probably be sometime around the end of July.

Admiral **Dunn**. We can handle that delay operationally for about six months with certain personnel management procedures.

Mr. **McDade**. What are your plans for the existing TACAMO aircraft, EC-130Qs, when the E-6A becomes operational?

Admiral **Dunn**. We have tentative plans to transition those that have sufficient life into cargo carrying aircraft and tankers.

Mr. **McDade**. Any tankers going to the Marines?

Admiral **Dunn**. That is a possibility, yes, sir.

Mr. **McDade**. Thank you, Mr. Chairman.

Mr. **Dicks**. Let me follow up on E-6A. Do we have any problems with the E-6A? I heard some contractor talk that there are some problems with the E-6A in terms of being able to do the mission which is I guess to fly about a five mile turn?

Admiral **Wilkinson**. A five mile flat turn.

Mr. **Dicks**. With a wire hanging down. I have been out and seen it done in the C-130s. That is when we decided we ought to get a new airplane. But have there been any problems in performing the basic mission?

Admiral **Wilkinson**. We have had a couple of problems with the aircraft and it just shows you when adapting something like an old, proven airframe to a new mission, you have to be careful.

We had some problems with wing-tip vibration, oscillations, so we had to stiffen the wings. That has been done.

We also had a problem with the trailing wire antenna touching the horizontal tail in same circumstances. We think we are going to be able to work our way through that particular problem with better instrumentation in the cockpits for precise control of the bank angle and we have made some changes to the horizontal tail so if it does touch, there is really no danger to the aircraft. So we think we will be able to correct the problem.

Mr. DICKS. Anything else? According to this contractor, there was a lieutenant at Norfolk who made a speech in which he detailed some of the concerns he had as one of the people who has flown the airplane—do you know who that is?

Admiral WILKINSON. I have read his paper, yes.

Mr. DICKS. What does he say in his paper?

Admiral WILKINSON. He is saying, be cautious when you take an existing airframe and put in into a new mission. Be sure you test it thoroughly because different things come out like that wing-tip oscillation. Nobody expected that to happen, but it did.

Mr. DICKS. Are you confident, do you think we can come up with fixes to the issues that he has raised?

Admiral WILKINSON. Yes, I am quite sure we can.

Mr. DICKS. Have we got them done yet?

Admiral WILKINSON. We don't have them all done yet, no, sir. We are still in the flight test this month to verify that we have got the vertical tail problem understood, the trailing wire antenna, I think we are almost there on that. There are still a few more analyses required to be sure we understand.

Mr. DICKS. Anything else? Any other issues?

Admiral WILKINSON. There probably are. I will see what I can get for the record.

[The information follows:]

———. Normal perturbations caused by aircraft motion and weather cause the long wire to "yo-yo" which can increase wear and tear on the wire and lower effective radiated power. Improved reliability and maintainability were primary reasons for procuring the E-6. ———.

While the numerous advantages of the E-6 over the older EC-130 represent a giant step forward for overall TACAMO effectiveness, the increased stall speed of a swept wing aircraft has increased the "yo-yo" problem. We recognize the need for an on-going improvement program to refine procedures, improve training and modify TACAMO system based on our initial experience to ensure that "yo-yo" doesn't degrade TACAMO effectiveness.

Admiral DUNN. There is an issue on the contractor training as far as the in-flight trainer.

Admiral WILKINSON. That doesn't have to do with the aircarft.

Admiral DUNN. It doesn't have to do with the aircraft itself.

Mr. DICKS. Tell me about that. We want to know about the entire program.

Admiral DUNN. There is a delay in this inflight trainer that has been being provided by Reflectone.

As a result, our pilots haven't been trained by them. Instead, we have made arrangements with the Air Force for training.

Mr. DICKS. These are AWACs?

Admiral DUNN. They are Boeing 707s. They have completed flight training for 15 pilots and are in the process of agreeing to train 11 additional pilots, so we are not falling behind on training.

Admiral WILKINSON. That is a contract problem with the current contractor and we are working now to transition part of that contract to somebody whom we think can produce.

That is still in negotiation, but I think we will be able to handle that.

Mr. DICKS. When is the IOC for this?

Admiral DUNN. This year, I am trying to find the exact time.

Mr. DICKS. Do you think you are going to have all these problems ironed out and be assured you know what you are doing by fiscal year 1990?

Admiral WILKINSON. By the end of fiscal year 1989, I think we will have the vertical fin fixed. We have already fixed the wing stiffness or the wing tip oscillation, and we are almost there on the trailing wire antenna issue.

Mr. DICKS. What about the basing? You had a basing problem. Have you got that ironed out?

Admiral DUNN. We think we have. There will be several deployed sites. If I may correct the record, the IOC is ———.

Mr. DICKS. That was close.

Admiral DUNN. Yes. There are several deployed sites. Travis is one.

I can provide the rest for the record.

Mr. DICKS. Okay.

[The information follows:]

Tinker Air Force Base in Oklahoma will be the main operating base for the E-6A and the two TACAMO squadrons. Funds were released in October 1988 for construction of facilities for Navy operations. The squadrons will move to Tinker starting July 1992 with the west coast squadron, followed by the east coast squadron in January 1993. Tinker facilities will not be available when E-6A is introduced into the fleet. The squadrons will operate with contractor logistics support at current operating bases (NAS, Barbers PT, HI and NAS, Patuxent River, MD) until Tinker facilities are available.

TACAMO operates from two standby alert sites, one each on the east and west coasts. The west coast E-6A alert site is Travis AFB, CA and the east coast alert site is NAS, Patuxent River, MD. During aircraft operational deployments to the east and west coast, the E-6 will use the alert base and randomly selected airfields for short term operations. The permanent alert sites serve two functions; support of the standby alert aircraft, and a base for the alert maintenance team and spares to provide unscheduled support for the deployed aircraft.

V-22 FOR SPECIAL OPERATIONS FORCES

Mr. DICKS. One final question, General Pitman, this is for you. Not addressed in your statement is what is going to be done to offset the role the V-22 was to play for special operations forces. Do you know?

General PITMAN. Yes, sir. I have heard the testimony, but that is really a business of the Special Operations Command. Obviously, if you don't have this capability, you would have to use the current helicopters and in-flight refueling aircraft, C-130s, to refuel them for the long range mission.

MARINE CORPS AIRCRAFT REQUIREMENTS

Mr. DICKS. Mr. McDade.

Mr. MCDADE. Thank you.

General Pitman, in your statement, you address the Marine Corps requirement for an all-weather attack capability. The A-6E currently fulfills that role and the A-12 is the Navy replacement. Apparently the Marine Corps preference is for the F-18D rather than the A-12.

Is that an accurate statement?

General PITMAN. Yes, sir. We are looking at that at the present time in conjunction with the Department of the Navy. We do not believe that the A-12 will meet our expeditionary requirements of operating in forward areas. We don't need quite the long range the Navy does.

So we are looking at a replacement; yes, sir.

Mr. McDADE. How many A-6E aircraft are currently operated by the Marine Corps?

General PITMAN. It varies between 50 and 54, depending on how many squadrons we have deployed aboard ship.

Mr. McDADE. Would there be changes that could be made to the F-18D configuration to make that an adequate replacement for the A-6E in your judgment?

General PITMAN. Yes, sir. The F-18D is currently undergoing a radar upgrade program. With a slight addition, to include the capability to bomb utilizing the RABFAC beacon and a software change which would allow the radar to give us a terrain following, terrain clearance capability, we could carry out the all-weather attack mission as well, or better than the A-6E does today.

Mr. McDADE. Are these changes funded in either procurement or R&D?

General PITMAN. The initial upgrade, is funded. The add-ons are not funded.

Mr. McDADE. Do you have any numbers on what would be required for those R&D dollars?

General PITMAN. It will run about $38 million additional R&D dollars.

Mr. McDADE. Your unfunded needs for the whole look at the F-18 is $38 million?

General PITMAN. Yes, sir.

[CLERK'S NOTE.—Subsequent to the hearing, General Pitman revised his remarks to read as follows:]

It will run between $60 and $75 million additional R&D dollars and $24 million for procurement for the RABFAC and terrain-following/terrain clearance capabilities.

Mr. McDADE. What would the F-18 replace; the A-6?

General PITMAN. We are receiving our first F-18Ds commencing in the fall of this year but they will not have an all weather attack capability. The F/A-18D was designed to replace our reconnaissance and TAC(A)/FAC(A) aircraft. Initially, we will replace our reconnaissance aircraft. Following that, we will have to decide whether to continue to stand up two new squadrons to replace our TAC(A)/FAC(A) aircraft or to replace our A-6Es. It is an initiative under consideration within the Department of the Navy.

Mr. McDADE. When would you get the A-12 as far as you know if that were the replacement aircraft?

General PITMAN. It would be in the late nineties.

Mr. **McDade**. What implications would the decision to use the F/A-18 instead of the A-12 have on the total cost of the A-12 program? Have you looked at that?

General **Pitman**. No, sir.

Admiral **Dunn**. It will have minimal effect.

Mr. **McDade**. If there is any change in that, change it for the record.

Mr. **McDade**. Thank you, Mr. Chairman.

Thank you, gentlemen.

Mr. **Dicks**. Thank you Gentlemen. We will have other questions for the record. The committee will stand in adjournment until 10:00 o'clock tommorrow morning.

[Clerk's note.—Questions submitted by Mr. AuCoin and the answers thereto follow:]

HELICOPTER ANTI-SUBMARINE WARFARE (ASW)

Question. What are the deficiencies in the SH-60F you refer to in your statement?

Answer. The following deficiencies were identified during recent testing. None preclude the safe, operational effectiveness of the SH-60F. All corrections are low risk and involve no major design or technological change.

Altitude hold loss during automatic hover departure when a particular combination of pilot control trim buttons are actuated.

Doppler hover altitude control is overly sensitive.

Install Armament System Controller protective circuit to prevent electrical short damage while performing bomb rack ground maintenance.

Replace transmission oil cooler splined shaft with a solid shaft to eliminate current inspection requirement.

Incorporate updated MK-50 torpedo depth settings and closure contour data when available for MK-50 testing.

Provide aircrew with ability to automatically recall tactical data system resets.

Improve readability of the Multifunction Display, Display Control Panel and Horizontal Situation Video Display at low intensity settings.

Eliminate false failure alerts when certain systems are conducting self-test.

Improve the strength of the helicopter in-flight refueling bracket.

Improve the air conditioning system.

Redesign AQS-13F dipping sonar transducer boot clamp to prevent damage to sonar cable.

Reroute AQS-13F sonar internal triax cable to prevent inadvertent damage during transducer repair.

Install an inhibit circuit in the AQS-13F sonar to prevent pinging the sonar when the transducer is out of the water.

Question. What will the SH-60F do for us that the SH-60B can't?

Answer. The primary mission of the SH-60F is to provide Antisubmarine Warfare (ASW) protection in the inner-zone of the Carrier Battle Group (CVBG). The SH-60F is a fast-reacting, highly mobile ASW system which uses an active dipping sonar and sonobuoy processor for detecting, classifying, localizing, tracking, and attacking enemy submarines which enter the high-noise environment of the CVBG inner-zone. The SH-60F counters the submarine threat by operating as a screening unit under the close control of the CVGB ASW commander and reacting to contacts in the inner zone generated by other ASW units. It also operates independently at scenes of ASW action and while conducting ASW searches. The SH-60F is a derivative of the SH-60B (LAMPS MK III) helicopter, using the SH-60B airframe and drive train and replacing mission avionics designed for SH-60B outer-zone ASW with those designed for inner-zone ASW. The primary inner zone ASW sensor unique to the SH-60F is the AQS-13F active dipping sonar. Specifically, the SH-60F provides a mobile, active sonar essential to submarine prosecution in the CVBG inner zone, while the SH-60B's forte is passive acoustic screening in the CVBG outer zone.

F/A-18 RADAR UPGRADE

Question. What will we gain from the F/A-18 radar upgrade?

Answer. The APG-65 is a multi-mode, pulse doppler radar designed to support the multimission requirements of the F/A-18 aircraft. The Navy began development of the APG-65 in 1976. The radar is limited by the increasing threat capability, a compromise of the radar's current design and the existing hardware's throughput saturation. Failure to upgrade the APG-65 will have serious consequences for operational capabilities against the ECM threat.

The radar upgrade will provide immediate improvement in operational capability and enable growth through software to maintain the APG-65 effectiveness into the next century. Costs have been minimized by capitalizing on commonality with the F-14 and F-15 radars. There will be an average of 840 active Hornets providing the backbone for the Navy and Marine air through the next decade. The radar upgrade will provide F/A-18 aircrews with the capability to employ a beyond visual range (BVR) missile and enter an engagement with increased situational awareness. Without the radar upgrade the F/A-18 will experience less operational effectiveness against the threat, and adverse combat attrition can be expected.

F-14 AIRCRAFT

Question. How will the F-14D's energy maneuverability stack up against the Fulcrum?

Answer. The F-14D in a configuration of two AIM-9 Sidewinders, two AIM-7 Sparrows, two AIM-54 Phoenix, and two external drop tanks ———.

Question. In today's dollars, what is the unit program cost of a new F-14D, a Navalized ATF, and an F-14D remanufacture?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

ADVANCED TACTICAL FIGHTER (ATF)

Question. Do you foresee any show-stoppers in Navalizing the ATF?

Answer. At the present time, no. Designing an aircraft with acceptable size for its mission that can safely take off and land on a carrier is a significant technical challenge. In addition to carrier suitability, the aircraft must include a multi-mission capability. The ATF program must meet both basic requirements to be an acceptable carrier aircraft. Those technical challenges are being addressed from the outset of ATF/NATF design considerations. At this time, there are no known technical issues so insurmountable as to cause the Navy to reconsider its plan to develop a Navy ATF.

Question. Does the Navy have a say in the Air Force ATF downselection?

Answer. Yes. The Requests for Proposal included the Navy's needs. Each contractor team, after prototype demonstration/validation, presents their proposal to a combined USAF/USN source selection team for contractor Full Scale Development award, winner take all, including variants. The Air Force will continue DEM/VAL of Full Scale Development units followed by Navy DEM/VAL of Navy variant FSD units.

ADVANCED TACTICAL SURVEILLANCE

Question. What are the airframes under consideration for the ATS derivative?

Answer. Three airframes are presntly under consideration, two which are derivatives of existing airframes and one which is a new start. The two existing platforms being considered would be an S-3 derivative on an A-12 derivative. The third option would be a new start which at this time has no particular airframe associated with it.

Question. You seem to be envisioning the ATS as an electronic airframe only. Would this also eventually be used for tanker and COD?

Answer. Two factors will determine this, the primary one being the airframe selected to fill the ATS role. This airframe may or may not be able to be modified in order to fill those two roles. If it was mandatory the ATS airframe fulfill these two missions and meet the TOR requirements for ATS a new start would be the best option to ensure the optimal airframe. Secondly, the ATS platform may not be able to fulfill the Navy needs for the tanker and COD missions in terms of performance and payload.

FLYING HOURS

Question. What would it cost to take your Primary Mission Readiness from the planned 87 percent to your peacetime goal of 88 percent?

Answer. It would cost $15.7 billion to raise PMR to the peacetime goal of 88 percent in FY 1990. The current budget request of 87 percent PMR (allowing two percent for simulation), and 25 hours per crew per month is the minimum required to meet peacetime flying readiness objectives. While additional funding would result in flight crews that are more ready, as well as more satisfied if they are getting more flight hours per month, the Flying Hour Program cannot be viewed in isolation. Given the other priorities in the Navy budget and overall fiscal constraints, the resources provided to flying hours are in balance with those allocated to the total Navy program.

FORCE PLANNING

Question. A few years ago it seemed we are buying more carrier decks then we'd have aircraft to put on them. With the reduction to 14 decks, is that no longer true? Knowing that your personal credibility for the next 20 years may be affected by your answer to this, can you sit there and tell us with full confidence that your plan will not leave us with an insufficient ratio of airplanes to decks?

Answer. The Navy's procurement strategy for naval aircraft is acutely attuned to its overall carrier warfare requirements. There are sufficient aircraft to outfit each of our deployable carriers. In the event it became necessary to sortie all 14 carriers simultaneously we would draw additional aircraft from those on "pipeline" status and from the training squadrons. If the current procurement plan contained in the five year defense plan is seen through to logical conclusion, some of the more drastic current measures will be unnecessary by the latter part of the next decade.

[CLERK'S NOTE.—End of questions submitted by Mr. Aucoin. Questions submitted for the record and the answers thereto follow:]

CARRIER AIRCRAFT REQUIREMENTS

Question. In January 1989, the Secretary of the Navy submitted a report on Naval Aviation Requirements to the Secretary of Defense. That report was predicated on the near-term achievement of 15 deployable carriers and 15 carrier airwings. The amended budget proposes retirement of the *CORAL SEA* and *MIDWAY* earlier than planned so you will remain at 14 carriers until at least 1996. What is the composition of the new Theodore Roosevelt Air Wing and how does it differ from the air wings currently on the majority of our carriers? What is the reason for each change?

Answer.

AIR WING COMPARISON

A/W	F-14 VF	F/A-18 VFA	A-6/A-12 VAM	EA-6 VAQ	E-2 AEW	S-3 VS	H-3/H-60 HS	Total
Conv*	24	24	14	4	4	10	6	86
T. Roos*	20	20	20	5	5	10	6	86

(Conv = conventional air wing; T. Roos = Theodore Roosevelt Air Wing.)

INDIVIDUAL CHANGES

Principal reason for different composition is to provide more offensive "punch" by increasing the numbers of all weather medium attack aircraft (A-6/A-12) and AAW threat response is enhanced by additional EA-6 and E-2 aircraft as recommended by the 1984 Carrier Air Wing Study.

Question. Provide an explanation of how each aircraft type/model requirement is derived including the number of squadrons and their size, maintenance pipeline requirements, training squadrons, and attrition calculations. Also provide an inventory stream through 1996 based upon the aircraft quantities requested in the amended budget and planned quantities through fiscal year 1994.

Answer. The Programming Objective of each carrier based aircraft presented in the FY 89 Naval Aviation Report is based on the Navy converting its 15 Carrier Air Wings (CVWs) to the new "Transitional" Air Wing and meeting the Marine requirement for its three active and one reserve Marine Air Wing (MAW).

The breakdown of that Programming Objective by each type/model/series are as follows:

Fighters (FV): F-14 (USN)

Number USN Active Sqdns/PAA/Total PAA	26/10/260
Number USN Reserve Sqdns/PAA/Total PAA	4/10/40
Training	65
RDT&E	17
Pipeline	76
Total	458

APBD APN PLAN REQUIREMENTS VS. INVENTORY

	Fiscal Year—							
	1989	1990	1991	1992	1993	1994	1995	1996
F-14 requirement[1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Inventory	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Delta	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Attrition per year	9	7	7	8	8	8	8	9

[1] Attrition projections are used to compute inventory projections only.

Strike Fighters (VFA/VMFA/VMFA(P)): F/A-18 (USN/USMC)

Number USN Active Sqdns/PAA/Total PAA	26/10/260
Number USN Reserve Sqdns/PAA/Total PAA	4/10/40
Number USMC Active Sqdns/PAA/Total PAA	12/12/144
Number USMC Reserve Sqdns/PAA/Total PAA	6/12/72
Number USMC Active VMFA(P) Sqdns/PAA/Total PAA	3/16/48
Number USMC Reserve VMFA(P) Sqdns/PAA/Total PAA	1/8/8
Training	113
RDT&E/Other (Blue Angels)	49
Pipeline	110
Total	844

APBD APN PLAN REQUIREMENTS VS. INVENTORY

	Fiscal Year—							
	1989	1990	1991	1992	1993	1994	1995	1996
F/A-18 requirement[1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Inventory [1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Delta	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Attrition per year:								
(F/A-18)	8	8	10	10	11	11	12	13
(A-7)	6	3	0	0				

[1] Inventory figures are comprised of F/A-18, A-7, A-4M, and F-4 aircraft. As F/A-18 aircraft are procured A-7, A-4, and F-4 squadrons are scheduled for transition to F/A-18s.

Large inventory decline FY 1992 depicts phase-out of last A-7 squadrons, FRS and RDT&E aircraft.

ATTACK (VA/VMA (AW)): A-6/A-12 (USN/USMC)

Number USN Active Sqdns/PAA/Total PAA	13/16/208
Number USN Reserve Sqdns/PAA/Total PAA	2/16/32
Number USMC Active Sqdns/PAA/Total PAA	5/10/50
Training	65
RDT&E	25
Pipeline	68
Total	448

APBD APN PLAN REQUIREMENT VS. INVENTORY

	Fiscal year—							
	1989	1990	1991	1992	1993	1994	1995	1996
A-6/A-12 requirement [1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Inventory [1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Delta [1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Attrition per year	8	8	9	9	10	10	11	10

[1] Figures deleted.

Electronic Warfare (VAQ/VMAQ): EA-6 (USN/USMC)

Number USN Active Sqdns/PAA/Total PAA	13/5/65
Number USN Reserve Sqdns/PAA/Total PAA	2/5/10
Number USMC Active Sqdns/PAA/Total PAA	1/10/18
Number USMC Reserve Sqdns/PAA/Total PAA	1/6/6
Training	21
RDT&E	4
Pipeline	23
Total	147

APBD APN PLAN REQUIREMENT VS. INVENTORY

	Fiscal Year—							
	1989	1990	1991	1992	1993	1994	1995	1996
EA-6 requirement [1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Inventory [1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Delta [1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Attrition per year	3	3	3	3	3	3	3	3

[1] Figures deleted.

Notes.—Inventory includes both EA-6A and EA-6B. All EA-6A aircraft will be phased out of inventory by end of FY 92. Remanufacture of EA-6B I CAP II to ADCAP will take less than 1 year, same as SDLM, will use pipeline aircraft.

Early Warning (VAW): E-2C (USN)

Number USN Active Sqdns/PAA/Total PAA	13/5/65
Number USN Reserve Sqdns/PAA/Total PAA	2/5/10
Training	16
RDT&E/other (Coast Guard/Customs)	7
Pipeline	27
Total	125

APBD APN PLAN REQUIREMENT VS. INVENTORY

	Fiscal Year—							
	1989	1990	1991	1992	1993	1994	1995	1996
E2-C:								
Requirement [1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Inventory [1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]

APBD APN PLAN REQUIREMENT VS. INVENTORY—Continued

	Fiscal Year—							
	1989	1990	1991	1992	1993	1994	1995	1996
Delta[1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Attrition per year	1	0	0	1	0	0	1	0

[1] Figures deleted.

Notes: The excess aircraft shown are a result of economic production rates and early procurement of attrition. This excess will rapidly derease in the second half of the 1990s due to large numbers of E-2 retirements.

Fixed Wing Carrier-based ASW (VS): S-3 (USN)

Number USN Active Sqdns/PAA/Total	13/8/104
Training	26
RDT&E	4
Pipeline	22
Total	156

APBD APN PLAN REQUIREMENT VS. INVENTORY

	Fiscal Year—							
	1989	1990	1991	1992	1993	1994	1995	1996
S-3:								
Requirement[1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Inventory[1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Delta[1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Attrition per year	2	2	1	1	2	1	2	1

[1] Figures deleted.

Notes: Fiscal Year 1990 eight aircraft are converted to ES-3s. Reserve CVWs do not have S-3 squadrons due to inventory shortages.

Helicopter carrier-based ASW (HS): SH-3H/SH-60F (USN)

Number USN Active Sqdns/PAA/Total PAA	13/6/78
Number USN Reserve Sqdns/PAA/Total PAA	2/6/12
Training	20
RDT&E	4
Pipeline	19
Total	133

APBD APN PLAN REQUIREMENT VS. INVENTORY

	Fiscal Year—							
	1989	1990	1991	1992	1993	1994	1995	1996
SH-3H/SH-60F:								
Requirement[1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Inventory[1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Delta[1]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]
Attrition per year:	3	2	3	3	4	4	4	5

[1] Figures deleted.

MARINE CORPS AIRLIFT

Question. Last year the Congress appropriated $46.0 million in advance procurement funding for the Navy to continue multiyear procurement of heavy-lift and mine countermeasures (H-53E) helicopters. The budget submitted in January does not propose multiyear procurement and has only three helicopters funded in FY 1990. The amended budget proposes annual procurement of heavy-lift helicopters as partial compensation for the V-22 cancellation. Are any of the CH-53E's in the amended budget going to be for mine countermeasures?

Answer. The ABS contains no MH-53E mine countermeasure aircraft.

Question. Are there any significant technical problems with the V-22 which justify cancellation of the program?

Answer. There are no significant technical problems with the V-22 which would justify program cancellation. As with any new aircraft development program that sits on the leading edge of technology, this program has experienced a few problems that required some modification/redesign. None of the problems encountered have been show stoppers. The complexity associated with developing, building and qualifying composite material parts of the V-22 were, in some cases, not estimated correctly by the contractors. This caused delays in delivery schedules but in no way could they be considered a significant technical problem.

Question. The amended budget for H-53 procurement is priced on an annual basis. Please provide multi-year procurement pricing for the record.

Answer. Multi-year procurement pricing for the CH-53E is based on 23 helicopters each fiscal year for the years FY 1990 through FY 1994. This represents a total of 115 helicopters across the FYDP. A buy of 23 helicopters per year across the FYDP would cost $2,230 million. A multi-year procurement plan for the same number of helicopters would cost $2,050 million representing a savings of $180 million. A multi-year procurement profile is as follows:

[Dollars in millions]

	Fiscal year—					Total
	1990	1991	1992	1993	1994	
ACFT	$453.0 23	$442.0 23	$420.0 23	$359.0 23	$375.0 23	$2,050.0 115

MEDIUM ATTACK AIRCRAFT (A-6 AND A-12)

Question. The January 1989 budget included A-12 production through fiscal year 1994 of 106 aircraft for $10.2 billion. Under the original budget profile, the Navy's medium attack force would have been 75 percent A-12's and 25 percent A-6E's well beyond the year 2000. How many A-6E aircraft will still be operating in the year 2005 based on the amended budget plans.

Answer. It is the Navy's desire that there will be no active operational A-6E aircraft operating in fiscal year 2005. The President's budget includes A-12 procurement ———.

Question. The A-6E system/weapons integration program (SWIP) operational evaluation was completed in May of 1988. The evaluation did not include tests of Laser or IIR Maverick missiles.

Have these missiles been tested with the A-6E subsequent to the May 1988 testing?

What are the results of the test?

Could the results be improved by modifications to the existing A-6E analog systems or is something more extensive needed?

Answer. Yes, additional operational testing was conducted with the A-6E on both IIR and Laser Maverick missile systems subsequent to May 1988.

The Commander, Operational Test and Evaluation Force (COMOPTEVFOR) provided the following conclusions to the CNO. ———.

The test results for both missile systems when launched from an A-6E SWIP aircraft could be improved by modifying existing A-6E software and by upgrading the current A-6E analog cockpit to a more digitized configuration.

MARINE CORPS ATTACK AIRCRAFT

Question. General Pitman, in your statement you address the Marine Corps requirement for an all weather attack capability. The A-6E currently fulfills that role and the A-12 is the Navy's replacement. But you indicate a Marine Corps' preference for the F/A-18D rather than the A-12. When would the F/A-18D replace the A-6E?

Answer. A plan is being developed within the Department of the Navy to transition Marine A-6E squadrons to F/A-18D and transfer the A-6E's to the Navy. Under this plan, standdown of the first A-6E squadron could commence as early as FY 1990, with the transition of 5 squadrons to be completed by FY 1994.

A-6 REWING AND MODIFICATIONS

Question. The program to procure composite wings for the A-6E aircraft began with great urgency over 4 years ago. The first flight of an aircraft with the new wing occurred on April 3, 1989. What is the driving factor in the installation schedule? Is it wing deliveries, SWIP kit deliveries, or industrial capacity?

Answer. The current driving factor in the rewing installation schedule is the SWIP kit availability. The initial problems that were experienced with wing production have been solved. Additionally with the reduction of OM&N cost due to competition by the NADEPs, we could increase the current wing installation schedule with the purchase of additional SWIP kits.

Question. How could the schedule be accelerated to get your grounded or restricted aircraft flying again?

Answer. Since March, the Boeing Aircraft Company has resolved a technical issue which had delayed wing deliveries. Additionally, the NADEPs were able to reduce the OM&N rework/installation cost through competition. Thus, we could accelerate the SWIP rewing schedule by the procurement of additional SWIP kits.

AIRCRAFT CARRIER INNER-ZONE ASW HELICOPTER (SH-60F)

Question. On April 1, 1988, the Director for Operational Test and Evaluation reported to the Congress on the Carrier Inner-Zone ASW Helicopter, SH-60F. The helicopter was tested in an operationally realistic manner and concluded that ". . . the SH-60F had demonstrated operational effectiveness in its primary mission of ASW. Secondary missions . . . were also satisfactorily demonstrated . . . Finally, we concluded that the decision to proceed beyond LRIP (low rate initial production) of the SH-60F was low risk." On April 25, 1989, the Secretary of Defense submitted the budget amendment which includes a one year gap in SH-60F production to ". . . provide time to correct deficiencies identified during field testing." If the deficiencies identified during field testing are sufficient to cause a disruption in the fourth year of production, are we to assume the previous testing was inadequate or were the results improperly reported to support a beyond LRIP recommendation?

Answer. Previous SH-60F operational testing was conducted in an operational environment which adequately tested the system's warfighting capability. These results were accurately reported and addressed during the Milestone III process. The current decision to delay the procurement of the 18 FY 1990 aircraft will allow sufficient time to fully evaluate the correction of all applicable deficiencies utilizing Lot III production aircraft which began delivery in Oct. 1989.

Question. What are the significant deficiencies now identified which increase the risk of production?

Answer. The following deficiencies were identified during recent testing. None of the deficiencies preclude safe and effective mission accomplishment. All deficiency corrections are low risk and represent no major design or technological change. All corrections will be ready for testing scheduled 1st Quarter FY 1990.

Altitude hold loss during automatic hover departure when a particular combination of pilot control trim buttons are actuated.

Doppler hover altitude control is overly sensitive.

Install Armament System Controller protective circuit to prevent electrical short damage while performing bomb rack ground maintenance.

Replace transmission oil cooler splined shaft with a solid shaft to eliminate current inspection requirement.

Incorporate updated MK-50 torpedo depth settings and closure contour data when available from MK-50 testing.

Provide aircrew with ability to automatically recall tactical data during system resets.

Improve readability of the Multifunction Display, Display Control Panel and Horizontal Situation Video Display at low intensity setting.

Eliminate false failure alerts when certain systems are conducting self-tests.

Improve the strength of the helicopter in-flight refueling bracket.

Improve the air conditioning system.

Redesign AQS-13F dipping sonar transducer boot clamp to prevent damage to sonar cable.

Reroute AQS-13F sonar internal triax cable to prevent inadvertent damage during transducer repair.

Install an inhibit circuit in the AQS-13F sonar to prevent pinging the sonar when the transducer is out of the water.

Question. Have you already signed contracts for the fiscal year 1989 production of 18 aircraft?

Answer. No. Definitization is scheduled for August 1989. Long-lead funding was provided April 1988.

Question. What is the Navy's plan for the production line? Are you going to shut-down the line or stretch-out deliveries of aircraft on contract?

Answer. The Department is currently reviewing available options to determine which option minimizes the adverse impact of a production gap.

Question. What would be the cost to the Government of a line shut-down?

Answer. Re-opening the production line after a line shut-down would require startup costs of approximately $27.8 million plus any additional cost from loss of competitive pricing. These startup costs have not been included in the current budget as the decision to delay FY1989 aircraft deliveries by one year avoids line shut-down that the deletion of FY1990 aircraft would have caused.

Question. What would be the cost to stretch deliveries to cover the one year gap?

Answer. A stretchout of deliveries would add approximately $20.0 million in costs plus any additional cost from loss of competitive pricing.

Question. You have proposed multiyear procurement for the SH-60F to begin in FY 1991. Will the production gap jeopardize the multiyear and its 10 percent savings?

Answer. The Department is currently reviewing available options to determine which option minimizes the adverse impact of a production gap. However, the Navy still anticipates multiyear savings of around ten percent.

T-45 GOSHAWK

Question. Last fall the Director, Operational Test and Evaluation reported that the T-45A was not operationally effective in the carrier environment in its current configuration and was not operationally suitable in its current configuration due to safety deficiencies. The contractor has told staff that a number of the identified deficiencies could have been corrected prior to production if more extensive testing had been performed during development. Rather than incurring the costs of additional testing, the contractor began production of an unsuitable aircraft. We are now faced with a one year program delay and a disruption of the production line. In addition, the negative test report delayed a decision on the fiscal year 1989 production and the Government's priced option expired. The result is an expected price increase of about 10% when production resumes. What is the total cost to correct the deficiencies?

Answer. At this point in time, the total costs to rectify deficiencies in the T-45TS which were identified during initial developmental and operational testing are unknown. Ongoing flight testing at NAS Patuxent River, Maryland, will identify proper solutions to deficiencies in flight handling characteristics. After all changes are identified, then negotiations between the Navy and

Douglas Aircraft will determine who will pay for subsequent changes in production aircraft. Douglas will pay for the majority of fixes to the two test aircraft and first production lot of 12 aircraft due to contractual obligations.

Question. What problems will the one year delay in T-45 initial operational capability cause for the aging fleet of T-2's and TA-4's currently in use?

Answer. The current inventory of T-2 and TA-4 aircraft will be able to support a one year slide in T-45TS initial operational capability and still meet currently funded pilot training rates. However, additional structural improvements to T-2 and TA-4 aircraft will be necessary to meet the additional workload.

Question. What are the total costs to fix the deficiencies in the T-2 and TA-4s to operate during the T-45 delay?

Answer. The total current cost estimate for T-2 and TA-4 repairs which may be required due to a one-year programmatic delay in the T-45 in addition to those previously planned will cost approximately $25 million.

E-2C AIRCRAFT

Question. Based upon the amended budget, the only Navy production program remaining at Grumman Aircraft Systems is the E-2C. What is the new price of the E-2C for fiscal year 1990 caused by the business base changes resulting from F-14D cancellation?

Answer. We will not be able to determine the effect of the cancellation of the F-14D program until Grumman takes action on this decision.

Question. The E-2C is one of the best selling aircraft for foreign military sales, partially due to its relatively low cost. What effect will a significant rise in cost have on foreign sales of this aircraft?

Answer. A significant rise in cost will discourage sales to new FMS customers and may force a reexamination of expansion plans on the part of current customers. It is unlikely that Egypt and Singapore, who are currently considering additional aircraft, would tolerate significant cost growth. Japan would be likely to evaluate this impact relative to other U.S. systems cost growth.

Question. Is the engineering service life of the E-2C still 10,000 flight hours?

Answer. Yes.

Question. With the delivery of the 1989 program aircraft, will you have 117 E-2Cs in your inventory? How many of these aircraft will be grounded or restricted because of wing cracks?

Answer. In FY 1991, there will be 118 E-2Cs in the inventory. Ten aircraft will be grounded or restricted because of wing cracks.

Question. What is the total requirement or planning goal for the aircraft?

Answer. The FY 1989 Naval Aviation Report (NAR) programming objective is 125 aircraft.

Question. For the record, please provide an explanation of how the aircraft requirements are derived, including squadron size and numbers, maintenance pipeline requirements, training squadrons, and attrition calculations.

Answer. The term requirements was defined as "Programming Objective" in the FY 1989 Naval Aviation Report (NAR). The breakdown of the E-2C Programming Objective to support 15 Transitional Carrier Air Wings (13 Active and 2 Reserve) is as follows:

Early warning (VAW): E-2C (USN)

	Total PAA
Number Active Sqdns x Primary Acft Authorized (PAA): 13 × 5	65
Training (2 FRS Sqdns): 25% x Active Total PAA	16
Number Reserve Sqdns x PAA: 2 x 5	10
RDT&E/Other (Coast Guard/Customs):	7
Pipeline (Published Rate x Total PAA): 27.5% x 98	27
Total Program Objective:	125

Attrition losses are not used in defining a programming objective.

Attrition calculations are used to derive current and future year inventory projections. Attrition (losses from crashes) rates are published annually for each type/model/series naval aircraft, expressed as a percent of the total Programming Objective minus Pipeline Aircraft that are projected to be lost each year.

MODIFICATIONS BACKLOG

Question. The budget for procurement of modifications kits in FY 1990 is approximately $600 million compared to over $1.3 billion appropriated in FY 1987. The stated reason for the reduced 1990 funding level is an attempt to reduce the backlog of uninstalled kits to zero. There is currently a backlog of uninstalled kits because of past funding constraints in the operating accounts. What is the current backlog of uninstalled kits?

Answer. The Navy does not track aircraft modification backlog in terms of numbers of kits because not all material is kitted (packaged/preserved for shipment). In fact most of the modification material purchased is never kitted, but is manufactured and installed directly into an aircraft. The Navy uses the unfunded installation requirement as the measure of backlog. The O&M,N modification backlog to be carried into FY 1990 is $134.0 million.

Question. When will the backlog be reduced to zero or a more manageable level?

Answer. Assuming approval of the President's Budget as submitted, the O&M,N Backlog will decrease to $26.4 million as profiled below by the end of FY 1991. This carry-over to FY 1992 is considered to be an acceptable level.

Modification backlog (end of fiscal year)—FY 1989: $134.0 million; FY 1990: $105.1 million; FY 1991: $26.4 million.

Question. What is the current level of O&M,N funding reserved for aircraft modifications installations?

Answer. The FY 1989 and Bush Budget O&M,N dollars identified for aircraft modifications installations are:

FY 1989: $291.9 million; FY 1990: $307.2 million; FY 1991: $327.6 million.

Question. What controls are in place to ensure fiscal year 1989 funding remains available for installations, and that sufficient future funding will be provided to install current kit procurement?

Answer. FY 1989 funding has been allocated to NAVAIR to implement the OPNAV prioritized O&M,N modification installation plan. As of 8 May 1989, the fiscal 1989 budget is 70 percent obligated. Any deviations from the plan are specifically approved by OPNAV. Deviations usually occur due to urgent fleet requirements, contract negotiation problems or aircraft non-availability for modification.

Future funding controls are delineated in internal Navy directives and formal Navy budget review boards regarding the full funding concept basically indicates that the Navy cannot procure more modification kits than it can install in the planned year of installation. Therefore, sufficient funding for aircraft installation must be programmed in the POM process to match future deliveries for material/kits. Every effort is made through the budget and program execution processes to ensure the balance between APN-5 procurement and O&M,N installation is maintained.

[CLERK'S NOTE.—End of questions submitted for the record.]

Thursday, April 13, 1989.

WEAPONS AND OTHER PROCUREMENT, NAVY

WITNESSES

REAR ADMIRAL S.F. LOFTUS, UNITED STATES NAVY, DIRECTOR, FISCAL MANAGEMENT DIVISION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

REAR ADMIRAL G.N. GEE, UNITED STATES NAVY, DIRECTOR, SURFACE COMBAT SYSTEMS DIVISION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

REAR ADMIRAL KENNETH C. MALLEY, UNITED STATES NAVY, DIRECTOR, STRATEGIC SYSTEMS PROGRAMS, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

REAR ADMIRAL GEORGE R. MEINIG, UNITED STATES NAVY, ASSISTANT DEPUTY COMMANDER FOR SURFACE WARFARE AND ANTI-AIR WARFARE SYSTEMS, NAVAL SEA SYSTEMS COMMAND

REAR ADMIRAL WILLIAM C. CARLSON, UNITED STATES NAVY, ASSISTANT DEPUTY COMMANDER FOR ASW AND UNDERSEA WARFARE SYSTEMS, NAVAL SEA SYSTEMS COMMAND

CAPTAIN DONALD L. FINCH, UNITED STATES NAVY, AIR PROGRAMS MANAGER 258, HARPOON AND PENGUIN MISSILES, NAVAL AIR SYSTEMS COMMAND

Introduction

Mr. Murtha. The Committee will come to order. The Committee this morning will hold hearings on Navy Weapons and Other Procurement programs.

The budget request for the Weapons Procurement appropriation is $5.7 billion, which represents a decrease of six percent below the amount provided last year. On the other hand, the budget request for the Other Procurement appropriation is nearly $5.0 billion, and represents an increase of five percent above the fiscal year 1989 appropriations.

The Committee intends to discuss a variety of issues which will include strategic and tactical missiles; torpedo programs; and major other procurement appropriations issues.

We welcome our witnesses, Rear Admiral Stephen F. Loftus and Rear Admiral George N. Gee. You have two blue noses here, Admiral. You and Mr. Dicks and myself, who were under the ice in a submarine, and I want you to know so that it appears in the record that those men out there are doing a wonderful job.

It makes you feel good that the amount of appropriations that we have been involved with, spare parts, readiness, training, and pay and so forth, is paying off because these guys are doing an outstanding job.

The USS *Sturgeon* is in good hands and we felt good. We inconvenienced them a bit because Mr. Dicks had to use two bunks. We were aboard 12 hours. We couldn't keep up with them. Breaking through the ice was fascinating. Everytime the captain winced because the current was moving the ship, we were sweating. We were impressed by the Navy's submariners and I wanted to make sure that got on the record.

I will recognize Mr. Dicks for a motion.

MOTION TO CLOSE

Mr. DICKS. I move that the hearing today, April 13, 1989, and those portions of the hearings scheduled for April 18, April 19, April 25, April 26, and May 2, which involve classified material, be held in executive session because of the classification of the material to be discussed.

[The clerk proceeded to call the roll.]

Mr. MURTHA. Madam Reporter, let the record show that on this vote Mr. Murtha, Mr. Dicks, Mr. Hefner, Mr. McDade, Mr. Miller, and Mr. Livingston voted aye.

Six Members having voted in the affirmative, this hearing is now closed.

Admiral Loftus, we will put your detailed statement in the record and if you and Admiral Gee will summarize for us, we will go forward and ask some questions.

SUMMARY STATEMENT OF ADMIRAL LOFTUS

Admiral LOFTUS. Thank you, Mr. Chairman.

I will do exactly that and submit the written statement for the record, I have a summary statement.

I would like to say that I appreciate the remarks that you made about your under-the-ice trip. I think that what you have seen is indicative of what is happening every day and it is good that you saw that. It is helpful to us. We appreciate your doing that.

Mr. Chairman, last year I stressed that our Department of the Navy amended budget request for fiscal year 1989 was reduced considerably from the original President's budget. The reduction was, in fact, $12 billion below our original request.

We attempted to absorb these reductions in a balanced manner to avoid undertaking an unacceptable level of risk in any one area. At the same time, we assessed the affordability of our programs and schedules in the outyears in view of our increasing responsibilities.

Clearly, Mr. Chairman, our approach at the time has paid dividends since our fiscal year 1990 and 1991 toplines are considerably less than when we initially made discrete programmatic decisions for those years. At the same time, our responsibilities have been increasing.

We have persisted in our balanced approach in this budget request in order to continue to produce a sound, fiscally-responsible budget. Additionally, we have attempted to safeguard recent achievements in modernizing and sustaining our fleet.

We have requested $5.0 billion for the Other Procurement, Navy account in fiscal year 1990 and $5.7 billion for fiscal year 1991. Of the amount requested, approximately 56 percent, or $3 billion in each fiscal year, is budgeted for modernization or replacement of obsolete equipment in the fleet and is time phased to support ship maintenance and modernization availabilities. Of that amount, 36 percent, or about $1.9 billion annually, is for investment equipment supporting overhauls and modernization of surface ships, 13 percent, or $700 million, for submarines, and 7 percent, or $400 million, for Tridents.

Included in these percentages is funding for our ASW modernization to include systems such as the BQQ-5 submarine sonar system, the SQQ-89 surface ASW combat system, the CCS MK-2 submarine fire control system, and the BSY-1/2 submarine combat systems. In fact, about one-quarter of the OPN budget request is directly related to antisubmarine warfare improvements. As you know, our highest warfare priority is ASW. The items we procure for ASW modernization are diverse, running the gamut from low technology items such as flexible hose couplings, which reduce radiated noise to high-technology electronic equipment, including the SQQ-89 surface ASW combat system.

Another 12 percent of our biennial budget supports procurement of expendables, including surface gun and air-launched ammunition, decoys and sonobuoys. Approximately six percent of the budget procures reactor cores and reactor equipment, allowing us to maintain two reactor producers. The remaining funds in the budget provide for the replacement of shore facility equipment, shore electronics equipment, and classified programs. This budget also includes, for the first time, outfitting spares which were transferred into the OPN account by the fiscal year 1989 Appropriations Act. The transition from the operation and maintenance account has been smooth.

We are grateful for your action last year to appropriate OPN at the account level. Some of the concerns expressed by the Committee were that we might use this initiative as a vehicle to undermine congressional oversight. Instead, I think that this has allowed us to better execute the programs which are appropriated by giving us a little more flexibility in converting our budget quality data to actual contract prices.

We appreciate the Committee's action and request your continued support for account level appropriations. Mr. Chairman, we have reexamined our ongoing programs with affordability in mind. We know that we must maintain our momentum in cost-reduction techniques such as competition if we are to maximize our procurements.

We believe that this OPN budget request reflects this structure and is sound, well priced, and balanced. The funding levels we have requested are the minimum resources needed to modernize and sustain a fleet which faces an increasingly sophisticated threat to our Nation's security.

This concludes my general comments. If you desire, I am prepared to go into some detail on our budget request in each budget activity. Otherwise, after Rear Admiral Gee's remarks, I will answer any questions you may have.

[The statement of Admiral Loftus follows:]

**NOT FOR PUBLICATION UNTIL RELEASED BY
THE COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES**

STATEMENT OF

REAR ADMIRAL STEPHEN F. LOFTUS, U.S. NAVY

DIRECTOR FISCAL MANAGEMENT DIVISION,

OFFICE OF THE CHIEF OF NAVAL OPERATIONS

BEFORE THE

SUBCOMMITTEE ON DEFENSE

OF THE

HOUSE APPROPRIATIONS COMMITTEE

ON

FISCAL YEAR 1990/1991 OTHER PROCUREMENT, NAVY

13 APRIL 1989

NOT FOR PUBLICATION UNTIL RELEASED BY
THE COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

REAR ADMIRAL STEPHEN F. LOFTUS

UNITED STATES NAVY

Rear Admiral Stephen F. Loftus, USN, a native of Arlington, Massachusetts, entered the U.S. Navy in 1956 after receiving a Bachelor of Science Degree from the University of Massachusetts. He also holds a Masters Degree in Financial Management from the U.S. Naval Postgraduate School in Monterey, California.

Following commissioning and subsequent naval flight officer training, he was assigned to the first of five squadron tours covering the warfare specialties of Carrier-based Early Warning, Heavy Attack, and Maritime Patrol. Significant shore assignments include two tours in the Naval Air Systems Command and various tours in the Office of the Chief of Naval Personnel and Chief of Naval Operations. He also served as Executive Assistant and Naval Aide to the Assistant Secretary of the Navy for Financial Management.

Rear Admiral Loftus served as Commanding Officer, U.S. Naval Air Station, Bermuda and Commander, Task Group 24.3 before returning to Washington to take the position of Assistant Director of Budget and Reports in the Office of the Comptroller of the Navy and Assistant Director, Fiscal Management Division in the Office of the Chief of Naval Operations.

Rear Admiral Loftus was selected for flag rank in January 1984 and was subsequently assigned in October of that year as Deputy Commander/Comptroller of the Naval Sea Systems Command in Washington, D.C. He also was assigned the duties of Inspector General, Naval Sea Systems Command.

In June 1986, Rear Admiral Loftus reported for duty as Commander, Fleet Air Mediterranean in Naples, Italy, with additional duty as Commander, Maritime Surveillance and Reconnaissance Force, Sixth Fleet and as Commander, Maritime Air Forces, Mediterranean.

Rear Admiral Loftus reported to the Office of the Comptroller of the Navy/Office of the Chief of Naval Operations on 22 July 1987 to relieve as Director, Office of Budget and Reports (NCB)/Fiscal Management Division (OP-82).

He has been awarded the Legion of Merit (with two Gold Stars in lieu of Second and Third Awards), Distinguished Flying Cross, Meritorious Service Medal, Air Medal (three STRIKE/Flight Awards), Navy Commendation Medal (with Combat V and two Gold Stars in lieu of Second and Third Awards), Navy Achievement Medal, Meritorious Unit Commendation (with Bronze Star), National Defense Medal, Armed Forces Expeditionary Medal, Vietnam Cross of Gallantry with Palm and Vietnam Campaign Medal.

Rear Admiral Loftus is married to the former Martha Jane Smith of Cambridge, Massachusetts. They have two daughters, Nancy and Susan.

PREPARED STATEMENT OF REAR ADMIRAL STEPHEN F. LOFTUS, U.S. NAVY

Mr. Chairman and members of the Committee, I appreciate the opportunity to appear before you and present the FY 1990/1991 President Reagan Biennial Budget request for the Other Procurement, Navy (OPN) appropriation.

Last year, as a result of the Budget Summit Agreement, we reduced our FY 1989 Department of the Navy request by some $12.0 billion below the original President's Budget. In structuring our Amended Budget Submission, we strove to implement these severe reductions in a balanced manner, without creating an unacceptable level of risk in any area. At the same time, we maintained our capability to meet our rising national commitments. In that process, we attempted to assess the affordability of planned programs and their schedules in the outyears.

It is clear that this approach was providential since our FY 1990/1991 topline is considerably less than when we first made the discrete programmatic decisions for those years. Our responsibilities, on the other hand, have been increasing. We understand the political realities and national dynamics which mandate accomplishing increased responsibilities at reduced resource levels. We therefore have continued this approach in preparing our OPN FY 1990/1991 President Reagan Biennial Budget request. We have protected, to the degree we are able, the recent achievements in enhancing our ability to protect peace and ensuring our continued ability to satisfy our warfighting requirements.

The Other Procurement, Navy, or OPN, appropriation funds procurement of investment equipment and material which we need to modernize and sustain our sea and shore units. The equipment we purchase in this account is diverse, ranging from fire pumps for our ships to fire trucks for our shore facilities, and from simple electronic test equipment to complex electronic detection, communication and fire control systems which represent the cutting edge of technology. The importance of this account cannot be overstated: as our fleet units age, we must modernize existing systems or backfit improved systems to meet emerging threats. Additionally, our procurements of level of effort ordnance contribute directly to our ability to sustain warfighting capabilities.

The OPN budget request of $4,986.9 million for FY 1990 is $250.8 million, or 5.3 percent, higher than FY 1989. The request of $5,723.9 million for FY 1991 is $737.0 million, or 14.8 percent, higher than the FY 1990 request.

Excluding classified programs, the primary contributor to growth in OPN over both years is our program to modernize anti-submarine warfare, or ASW, systems. ASW is the Navy's number one warfare priority and this OPN budget reflects that precedence. In our budget you will find substantial investments in our AN/SQQ-89 Surface ASW Combat System. the AN/BQQ-5 Submarine Sonar System, AN/SLQ-25 NIXIE Countermeasure System, Wide Aperture Arrays, SURTASS, SOSUS and AN/BSY-2 Submarine Combat Systems.

This budget also continues our emphasis on keeping the modernization of our Navy forces at a level that will sustain the numbers of ships necessary produce naval forces responsive to the threat in meeting our national requirements.

A large portion of the equipments procured in this account, particularly in Budget Activities 1, 2 and 4, is related to the Fleet Modernization Program. In conjunction with the Fleet Modernization Program, our OPN procurement of modernization and replacement equipment has allowed us to steadily extend the useful service life of our fleet. Examples of such OPN equipments include pumps, generators, air compressors, propellers and nuclear reactor components. Also, as technology progresses during a ship's life, it is worthwhile to upgrade the ship's weapons, sensors, communications systems and tactical data processing capability. This we accomplish through modernization kits for sonar, radar and fire control systems procured in OPN. Since many of these equipments are installed during regular ship maintenance availabilities, it is not necessary to procure all kits in a single year; we phase procurement on a lead time away basis, contracting for the items in time to ensure delivery shortly before the maintenance availability begins. For any major systems, the procurement program will extend over a period of several years, long enough for each of the platforms to go through a maintenance availability. OPN also funds a great deal of modernization equipment which is not tied to lengthy maintenance availabilities; these upgraded systems are often installed during short pierside availabilities by teams of specially-trained sailors.

As shown in Table 2, the budget request for Budget Activity 1, Ships Support Equipment, is $736.4 million in FY 1990 and $691.7 million in FY 1991. Funding in this budget activity provides the necessary hull, mechanical and electrical equipment required to maintain and modernize the fleet. We also fund procurement of small boats, industrial plant equipment and Special Warfare equipment in this area. Major program increases in FY 1990 include $94.3 million for Reactor Cores and $52.6 million for Strategic Platform Support Equipment. Programs with minor increases in FY 1990 include Type 18 Periscopes, Firefighting Equipment and Submarine Silencing Equipment. The FY 1991 request decreases primarily because of a reduced requirement for Reactor Plant Equipment.

The FY 1990 request for Reactor Plant Equipment is $373.9 million, while $285.6 million is requested for FY 1991. This provides for the procurement of replacement reactor cores, power units and other reactor plant components and equipment. Replacement cores and power units are the assemblies of nuclear fuel and necessary associated structural and reactivity control equipment required for the periodic refueling of nuclear powered ships. For cores and power units, the OPN-requested funds complement those requested in the Shipbuilding and Conversion, Navy account to support competitive production in a limited vendor pool. The funding profile requested will meet the refueling needs of the Navy in a manner most efficient to the government while ensuring adequate workload to support the industrial base.

Strategic Platform Support Equipment funding of $88.6 million for FY 1990 and $56.7 million for FY 1991 is requested to provide for hull, mechanical and electrical equipment required to support SSBN submarines. This equipment is required to support the unique operating tempo of SSBN's themselves as well as industrial plant and training equipment at TRIDENT Refit Facilities and Training Facilities on both coasts.

Other equipment in this budget activity primarily consists of modernized propulsion plant equipment, systems which control pollution levels and systems designed to improve safety and firefighting capabilities of our fleet. While these systems are generally of lesser technology than many of our weapons and combat suites, they are crucial to keeping our ships on station worldwide, extending the useful life of the units and protecting our sailors.

Budget Activity 2, Communications and Electronics Equipment, the largest in the OPN appropriation, is displayed in Table 3. The request for FY 1990 is $1,734.7 million and $2,014.5 million is requested for FY 1991. Equipment procured in this budget activity is for improvement of surface and air search radars; upgrade of systems used for detection, tracking, localization and classification of submarines; and giving the fleet the capability of deceiving, intercepting and analyzing airborne, electromagnetic and underwater radiations for the purpose of executing an effective surveillance and intelligence collection capability.

The FY 1990 and FY 1991 requests for Ship Radars of $60.4 million and $68.1 million, respectively, will provide the fleet with detection, tracking and identification equipment to meet the challenges of high speed attack capabilities of low-flyers, anti-ship missiles and modern aircraft. Planned initiatives during the Biennial Budget period include improvements to the AN/SPS-40 air search radar to increase detection capabilities in hostile, cluttered environments; procurement of the AN/SYS-( ) Integrated Detection and Tracking System which allows correlation of data from up to three radars, determines target tracks, and provides a single target output to the command/decision system; and procurement of the MK-23 Target Acquisition System, which provides rapid reacting, fully automatic detection, even in jamming environments, for the Improved Point Defense Surface Missile System.

We are requesting $341.9 million in FY 1990 and $440.9 million in FY 1991 for Ship Sonars. Included in this request is $192.5 million in FY 1990 and $253.7 million in FY 1991 for AN/SQQ-89 Surface ASW Combat Systems. These systems integrate and optimize the discrete functions of an improved hull-mounted sonar, towed array sonar, sonobuoy processing equipment and ASW fire control system. Funding is also requested to continue upgrading installed AN/BQQ-5 Sonar Systems onboard our SSN-637 and SSN-688 class submarines. The AN/BQQ-5 is designed to counter the threat of reduced radiated noise levels and improved sonar capabilities in foreign submarines through improvements in long range detection, classification and localization and by providing increased reliability and maintainability. The budget request also provides for a number of modernization efforts for sonar domes, towed array system equipment and processing equipment which is just as vital to our overall ASW effort.

We are requesting $360.4 million in FY 1990 and $391.8 million in FY 1991 for Anti-Submarine Warfare (ASW) Electronics Equipment to procure miscellaneous equipment in support of the active and reserve forces. We plan to upgrade the AN/SLQ-25 NIXIE torpedo countermeasure system in both fiscal years, and we have budgeted to continue to improve our towed array sonars. Our request includes $22.1 million in FY 1990 and $28.8 million in FY 1991 for the Submarine Acoustic Warfare System (SAWS) which will provide an enhanced survival capability for our submarines against torpedoes and will confuse enemy sensors. We have budgeted $95.2 million in FY 1990 to backfit three SSN-688 class submarines with Wide Aperture Arrays to greatly improve passive ASW capability. This begins our plan to backfit our Flight I SSN-688 class submarines with this system, which will significantly improve the warfighting capabilities of these ships. Additionally, we are planning to procure one AN/BSY-2 Submarine Combat System for use as a maintenance trainer in FY 1990 for $150.4 million and one AN/BSY-2 system in FY 1991 for $141.9 million to be used in a Software Maintenance Facility, allowing us to upgrade and prove out software without relying on contractors. Funding is also budgeted to support continued engineering improvements to the Sound Surveillance System (SOSUS) and Towed Array Sensor (SURTASS) programs.

We are requesting $132.4 million and $123.8 million for FY 1990 and FY 1991, respectively, for Reconnaissance and Electronic Warfare Equipment. This funding will provide the fleet with systems that have the capability of detecting overt electromagnetic emissions through passive means. Included is $78.0 million in FY 1990 and $79.2 million in FY 1991 for the AN/SLQ-32, a family of modular shipborne electronic warfare equipments to be installed in most surface ships.

The budget request for Other Electronic Equipment is $132.7 million for FY 1990 and $213.3 million in FY 1991. The largest program within this category is the Navy Tactical Data System (NTDS), which provides certain warships with rapid integration of ship sensor information, analysis and display of tactical information, and designation of weapons systems to incoming targets. Funding of $68.6 million for FY 1990 and $81.3 million for FY 1991 is requested for this system. Other systems procured in this category are Global Positioning System receivers, Minesweeping sonar equipment, and Submarine Surveillance equipment.

For Aviation Electronic Equipment, we have requested $83.4 million in FY 1990 and $63.3 million in FY 1991 for procurement of electronic equipment to support Naval and Marine aviation shore activities, shipboard aircraft control equipment and secure identification systems. Within this category is the Marine Air Traffic Control and Landing System (MATCALS) which will provide a fully automatic air traffic control and landing system via subsystems of radars, approach and landing systems, and support equipment. We have budgeted $15.4 million and $13.3 million in FY 1990 and FY 1991, respectively, for these systems.

In FY 1990, we are requesting $184.4 million for Other Shore Electronic Equipment. Our budget request for FY 1991 is $181.0 million. This includes funding of $86.6 million in FY 1990 and $79.6 million in FY 1991 for procurement of wide area surveillance systems, or Over the Horizon Radars, in each fiscal year. These systems will provide accurate targeting information to tactical commanders afloat.

We have requested $149.0 million in FY 1990 and $157.9 million in FY 1991 for Communications Equipment. This includes funding for general shipboard communications, unique submarine communications. satellite communications terminals and other equipment for shipboard communications centers. Of these systems, those involving satellite communications account for most of the funding. This includes command and control systems using Ultra High Frequency (UHF), Super High Frequency (SHF) and Extremely High Frequency (EHF) bands which are critical to communications in time of national emergency.

Strategic Platform Support Equipment in Budget Activity 2 accounts for $121.6 million and $207.5 million of our request in FY 1990 and FY 1991, respectively. This includes electronic equipment for the TRIDENT Training Facility, equipment that upgrades our SSBN sonars from the AN/BQQ-6 to the AN/BQQ-5E configuration, and Compact Very Low Frequency (VLF) receivers for submarine radio rooms. Of the increase requested for FY 1991 over FY 1990, $47.0 million is budgeted for AN/BQQ-5E modernization kits which are needed to meet installation schedules.

Our requests for Cryptographic Equipment are $155.0 million in FY 1990 and $150.5 million in FY 1991 to procure a wide variety of secure voice equipment. Funding of $37.8 million in FY 1990 and $42.7 million in FY 1991 is for procurement of the TSEC/KYV-5, the cryptographic module for the Advance Narrowband Digital Voice Terminal (ANDVT) which satisfies requirements for secure narrowband communications which cannot be met by existing equipment. Other programs of note in this area are the TSEC/KY-71/72 equipment which improves the secure voice capability presently provided by AUTOSEVOCOM I, and the TSEC/KG-84, a general purpose key generator which is designed to serve as the future standard link encryption device for low to medium speed record or data systems.

The request for Aviation Support Equipment in Budget Activity 3 is $510.4 million in FY 1990 and $528.5 million in FY 1991. As shown in Table 4, this budget activity is comprised of Sonobuoys, Air Launched Ordnance and Aircraft Support Equipment.

Our request for Sonobuoys is $115.4 million in FY 1990 and $104.1 million in FY 1991. This request considers the number of ASW shipboard air groups and shore based ASW patrol squadrons to be supported, actual and planned peacetime usage for these forces and training allowance requirements. A number of different types of buoys are requested, with the largest amount of funding requested for the AN/SSQ-53 Directional Low Frequency Analysis and Recording (DIFAR) sonobuoy, which is a passive directional buoy used during the target localization phase of the ASW problem.

In the area of Air Launched Ordnance, we are requesting $207.8 million in FY 1990 and $237.4 million in FY 1991. Foremost among these programs are those for General Purpose and Practice Bombs which account for almost half the requested funding. The budget request supports procurement of various components, including fins, retarders, fuzes, nose plugs and arming wires, for the present MK-80 series general purpose bombs; in the area of Practice Bombs, the budget request supports procurement of sub-caliber bombs used for pilot training, including MK-76, BDU-48, BDU-45, MK-83 Inert, and Laser Guided Training Rounds. Procurement of these practice bombs allows us to maintain war reserve inventories while providing training.

We are requesting $187.2 million and $187.0 million in FY 1990 and FY 1991, respectively, for Aircraft Support Equipment. Included within these amounts are funds to upgrade, replace and modernize our worldwide Weapons Range Support Equipment, Aircraft Rearming Equipment, Airborne Mine Countermeasures Equipment, and Meteorological Equipment.

As shown in Table 5, the request for Budget Activity 4, Ordnance Support Equipment, is $752.4 million for FY 1990 and $902.4 million for FY 1991. The primary contributor to the growth from FY 1990 to FY 1991 is in Strategic Platform Support. This reflects budgeting for equipment which supports ship alterations and test equipment for TRIDENT submarines and the TRIDENT Refit Facility. The dominant factor in program growth here from FY 1990 to FY 1991 is in the area of training equipment, where we have budgeted $119.4 million in FY 1991 for training equipment and systems supporting the TRIDENT D-5 backfit program. Another significant modernization program budgeted here is the Combat Control System MK-2 (CCS MK-2) which provides ADCAP torpedo capability plus display and simulator improvements to our SSBN platforms, increasing capability, commonality and reliability.

We are requesting $262.6 million in FY 1990 and $306.8 million in FY 1991 for Ship Gun Ammunition and Other Expendable Ordnance. While no major initiatives are included here, this ordnance provides direct contributions to training and sustainability of the fleet. In particular, this higher funding requested for FY 1991 supports increased procurement of Other Ship Gun Ammunition, allowing us to improve inventory positions of 20mm through 81mm ordnance, and increases in Ship Expendable Countermeasures, reflecting needed procurements of the MK-214 Decoy and the MK-186 Infrared Decoy.

Within the Gun and Missile System Equipment categories, we plan to procure a number of alterations for the purpose of modernizing fire control and launching systems for the Terrier, Tartar. Harpoon, AEGIS, NATO Seasparrow and Tomahawk programs. These modification kits improve performance, reliability and maintainability. For example, we have budgeted for modifications to the

MK-74 Tartar fire control system which will improve capability in electronic jamming environments and will fully exploit system target sorting capabilities. We are requesting $44.0 million in FY 1990 and $53.9 million in FY 1991 to continue upgrades to the AEGIS System and to procure equipment for the AEGIS Combat System/Educational Center. Our request also funds procurement of five Vertical Launch Systems over the biennial period at a cost of $159.6 million.

The requested funding of $73.2 million in FY 1990 and $83.2 million in FY 1991 for ASW Support Equipment will fund improvements to submarine fire control systems to enhance over the horizon targeting, ADCAP capability and display presentations. The Combat Control System MK-2 (CCS MK-2) Obsolete Equipment Replacement (OER) program helps to standardize hardware and software, ensuring commonality with the AN/BSY-1 system and TRIDENT SSBN's. Replacing obsolete components with modernized versions will result in improved reliability, maintainability and operability.

Our budget request for Civil Engineering Support Equipment, Budget Activity 5, is $97.1 million in FY 1990 and $97.6 million in FY 1991. This budget supports procurement of passenger carrying vehicles, trucks and trailers, construction, earthmoving, maintenance, fire fighting, weight handling, amphibious and specialized equipment, combat construction support equipment, pollution control equipment, and equipment used for construction of underwater facilities. Equipment procured here supports both operating forces and the shore establishment.

In Budget Activity 6, or Supply Support Equipment, we are requesting

$163.3 million in FY 1990 and $441.6 million in FY 1991 as shown in Table 6. This will finance the procurement of forklift trucks, materials handling equipment, investment support equipment and reprographic equipment. In addition, financing for certain classified projects is included in this activity, and these projects account for the increased level of funding requested for FY 1991.

For Personnel and Command Support Equipment in Budget Activity 7, we are requesting $445.2 million in FY 1990 and $478.7 million in FY 1991. Requested funding in the area of Training Equipment will support procurement of a variety of devices for maintenance, operator, team and refresher training for damage control and combat systems introduced into the fleet. For Command Support Equipment, our request is for $215.4 million in FY 1990 and $212.5 million in FY 1991, which will support procurement of a wide variety of investment equipment in the areas of Medical Support, Oceanographic Support, Naval Reserve Support, Operating Forces Support and Intelligence Support. In addition, the budget request for the Computer Acquisition Program will streamline the procurement of Automated Data Processing Equipment Navy-wide.

Our budget request for Spares and Repair Parts, Budget Activity 8, is $547.4 million in FY 1990 and $569.0 million in FY 1991. This funding will provide for initial equipment spare parts prior to transitioning to our Navy Supply System, replenishment spares for systems which are not scheduled for transition to the supply system, and outfitting spares to support initial installation of improvements in fleet units. Initial spares are provided to fleet units concurrently with installation of the new or modernized system. Replenishment spares support existing systems which are not part of the suppl system. Outfitting spares are provided to support the initial introduction of an improved system to a fleet unit when the system's support requirements already have transitioned to the supply system.

In summary, our budget request reflects a balanced approach to the dilemma of competing priorities for limited resources. Recognizing that we no longer have the fiscal flexibility to "fix" problems during execution, we have faced up to what we can realistically achieve in management and cost efficiency. We have recognized that we have to maintain our momentum in competition if we are to be affordable. We have made hard judgments on production quantities and development transition schedules so that our budget program will not evaporate during the heat of the execution process. We believe that this OPN budget request reflects this structure and is sound, well-priced and balanced. The funding levels we have requested are essential for the modernization and warfighting sustainability the fleet requires to meet an increasingly sophisticated threat to our nation's security.

Mr. Chairman, this concludes my prepared statement and I am ready to respond to any questions either you or members of the committee may have.

TABLE 1
OTHER PROCUREMENT, NAVY
BUDGET ACTIVITIES
($ IN MILLIONS)

	FY 1988	FY 1989	FY 1990*	FY 1991*
TOTAL OPN	4,549.6	4,736.1	4,986.9	5,723.9
O SHIPS SUPPORT EQUIPMENT	730.2	621.0	736.4	691.7
O COMMUNICATIONS AND ELECTRONICS EQUIP	1,518.9	1,397.5	1,734.7	2,014.5
O AVIATION SUPPORT EQUIPMENT	641.4	490.8	510.4	528.5
O ORDNANCE SUPPORT EQUIPMENT	788.8	1,086.5	752.4	902.4
O CIVIL ENGINEERING SUPPORT EQUIPMENT	95.2	108.1	97.1	97.6
O SUPPLY SUPPORT EQUIPMENT	107.2	103.5	163.3	441.6
O PERSONNEL AND COMMAND SUPPORT EQUIP	409.9	406.2	445.2	478.7
O SPARES AND REPAIR PARTS	258.1	522.5	547.4	569.0

TABLE 2
OTHER PROCUREMENT, NAVY
BREAKDOWN WITHIN BUDGET ACTIVITY 1
($ IN MILLIONS)

	FY 1988	FY 1989	FY 1990*	FY 1991*
SHIPS SUPPORT EQUIPMENT	730.2	621.0	736.4	691.7
O REACTOR PLANT EQUIPMENT	277.8	280.5	373.9	285.6
O STRATEGIC PLATFORM SUPPORT EQUIPMENT	52.9	36.0	88.6	56.7
O OTHER SHIPS SUPPORT EQUIPMENT	399.5	304.5	273.9	349.4

* Reagan Budget

TABLE 3
OTHER PROCUREMENT, NAVY
BREAKDOWN WITHIN BUDGET ACTIVITY 2
($ IN MILLIONS)

	FY 1988	FY 1989	FY 1990*	FY 1991*
COMMUNICATIONS AND ELECTRONICS EQUIP	1,518.9	1,397.5	1,734.7	2,014.5
0 SHIP RADARS	125.4	111.8	60.4	68.1
0 SHIP SONARS	238.7	348.4	341.9	440.9
0 ASW ELECTRONICS EQUIPMENT	211.3	101.9	360.4	391.8
0 RECONNAISSANCE AND ELECTRONIC WARFARE	141.5	85.1	132.4	123.8
0 OTHER ELECTRONIC EQUIPMENT	203.4	160.7	132.7	213.3
0 AVIATION ELECTRONIC EQUIPMENT	74.2	28.7	83.4	63.3
0 OTHER SHORE ELECTRONIC EQUIPMENT	178.0	266.1	184.4	181.0
0 COMMUNICATIONS EQUIPMENT	85.9	45.3	149.0	157.9
0 SHORE COMMUNICATIONS EQUIPMENT	36.9	22.3	13.5	16.3
0 STRATEGIC PLATFORM SUPPORT EQUIPMENT	51.4	62.4	121.6	207.5
0 CRYPTOGRAPHIC EQUIPMENT	172.0	164.9	155.0	150.5

TABLE 4
OTHER PROCUREMENT, NAVY
BREAKDOWN WITHIN BUDGET ACTIVITY 3
($ IN MILLIONS)

	FY 1988	FY 1989	FY 1990*	FY 1991*
AVIATION SUPPORT EQUIPMENT	641.4	490.8	510.4	528.5
0 SONOBUOYS	167.6	132.4	115.4	104.1
0 AIR LAUNCHED ORDNANCE	279.0	193.2	207.8	237.4
0 AIRCRAFT SUPPORT EQUIPMENT	194.7	165.3	187.2	187.0

* Reagan Budget

TABLE 5
OTHER PROCUREMENT, NAVY
BREAKDOWN WITHIN BUDGET ACTIVITY 4
($ IN MILLIONS)

	FY 1988	FY 1989	FY 1990*	FY 1991*
ORDNANCE SUPPORT EQUIPMENT	788.8	1,086.5	752.4	902.4
0 SHIP GUN AMMUNITION	128.3	111.3	131.4	152.7
0 SHIP GUN SYSTEM EQUIPMENT	12.9	6.7	9.2	17.2
0 SHIP MISSILE SYSTEM EQUIPMENT	366.6	358.4	315.1	275.1
0 STRATEGIC PLATFORM SUPPORT EQUIPMENT	53.5	358.5	60.8	189.0
0 ASW SUPPORT EQUIPMENT	69.7	96.3	73.2	83.2
0 OTHER ORDNANCE SUPPORT EQUIPMENT	41.7	29.9	31.7	31.2
0 OTHER EXPENDABLE ORDNANCE	116.2	125.4	131.2	154.1

TABLE 6
OTHER PROCUREMENT, NAVY
BREAKDOWN WITHIN BUDGET ACTIVITIES 5, 6, 7 AND 8
($ IN MILLIONS)

	FY 1988	FY 1989	FY 1990*	FY 1991*
CIVIL ENGINEERING SUPPORT EQUIPMENT	95.2	100.1	97.1	97.6
0 TRUCKS, TRAILERS, CONSTRUCTION AND MAINTENANCE EQUIP, PASSENGER VEHICLES	57.1	52.9	66.0	67.7
0 AMPHIBIOUS/COMBAT CONSTRUCTION EQUIP	14.1	39.5	12.7	12.8
0 OTHER CIVIL ENGINEERING EQUIPMENT	23.9	15.8	18.4	17.0
SUPPLY SUPPORT EQUIPMENT	107.2	103.5	163.3	441.6
PERSONNEL AND COMMAND SUPPORT EQUIPMENT	409.9	606.2	445.2	478.7
0 TRAINING EQUIPMENT	59.2	87.7	54.4	109.8
0 COMMAND SUPPORT EQUIPMENT	168.6	169.2	215.4	212.5
0 COMPUTER ACQUISITION PROGRAM	173.9	137.6	142.8	134.[illegible]
0 PRODUCTIVITY PROGRAMS	8.2	11.6	32.6	22.[illegible]
SPARES AND REPAIR PARTS	258.1	522.5	547.4	569.0
0 INITIAL/REPLENISHMENT SPARES	258.1	165.3	225.3	245.0
0 OUTFITTING SPARES	0.0	357.2	322.1	323.[illegible]

* Reagan Budget

Mr. MURTHA. Do you have comments, Admiral Gee?

SUMMARY STATEMENT OF ADMIRAL GEE

Admiral GEE. I do. It is a pleasure to appear. As we did last year, with me this morning are some experts in the WPN appropriations, the flag officers and captains who build the systems: Rear Admiral Ken Malley, Director, Strategic Systems Programs; Rear Admiral George Meinig, Assistant Deputy Commander for Surface Warfare and Anti-Air Warfare at the Naval Sea Systems Command; Rear Admiral Bill Carlson, Deputy Commander for ASW and Undersea Warfare Systems at the Naval Sea Systems Command; Captain Don Finch, Air Programs Manager for Harpoon and Penguin Missiles; Captain Larry Pfitzenmaier, the Defense Suppression Systems Program Manager; and Captain Charles "Skip" Buchanan, Office of the Chief of Naval Operations Air-to-Air Missile Program Coordinator.

Mr. Chairman, in developing our fiscal year 1990–1991 budget request, the Navy has carefully programmed our weapons account with the primary objective of insuring that our sailors and Marines have sufficient quantities of quality weapons to sustain naval forces in combat, you have accorded ordnance readiness and sustainability top priority in the past and we have worked hard to continue that initiative.

In doing so, we have adhered to three major principles:

First, to maintain proven, cost-efficient contract structures. Second, to reprice programs based upon known fiscal year 1988 and fiscal year 1989 contract savings and expected returns from continued competition. Third, to carefully account for fact-of-life program changes.

In many cases, our request is for minimum sustaining competition levels and we would appreciate the Committee's understanding that there is simply no pricing latitude in this year's weapons request, short of reducing the number of weapons procured.

On average, WPN total obligation authority Real Program Growth, RPG has maintained pact with total Department of the Navy from 1981 through 1991. The fiscal year 1990 WPN budget request of $5.725 billion reflects a $429.0 million decrease from the fiscal year 1989 enacted level. This 8.7 percent real program decline is primarily driven by reduced funding levels. Although the fiscal year 1991 budget request of $6.332 billion reflects a $178.0 million increase over fiscal year 1989, it nevertheless still represents a 2.4 percent real program decline.

Navy procurement policies continue to emphasize the need to buy more weapons for the money provided by Congress. We are making excellent progress in achieving full competition for most major weapon systems, and are requesting multi-year approval for appropriate programs. WPN savings due to competition from fiscal year 1987 to thus far in fiscal year 1989 is over $1.6 billion.

The fiscal year 1990–1991 WPN request includes expanded use of multi-year procurement for Maverick and Phoenix missiles to reduce total program costs while facilitating stability and long-range planning for programs already in production.

With respect to apportionment between WPN budget activities, there is a 2 percent distribution shift from fiscal year 1989 to fiscal year 1990–1991 in WPN from ballistic missiles to tactical missiles and torpedoes as the cost and quantities of the Trident D–5 missile decrease and as we increase production of Harpoon, SLAM, AMRAAM, HARM, RAM and MK–50 torpedoes along with initial production of Penguin.

In fiscal year 1989, we will complete procurement of Tactical Air-Launched Decoy and Vertical Launch ASROC in accordance with your direction.

The fiscal year 1990–1991 request includes funds for the production ramp-up in programs such as the AMRAAM missile, and MK-50, Advanced Lightweight Torpedo, the accelerated buy-out of the Maverick Missile program, and both long-lead training equipment and second source costs for the Sea Lance common ASW standoff weapon, which is planned for initial low-rate procurement in fiscal year 1992.

Mr. Chairman, although I am prepared to discuss all programs contained in this year's request, otherwise, I am prepared to receive your questions, sir.

[The statement of Admiral Gee follows:]

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THE HOUSE APPROPRIATIONS COMMITTEE

STATEMENT OF
REAR ADMIRAL G. N. GEE
DIRECTOR, SURFACE COMBAT SYSTEMS
OFFICE OF THE CHIEF OF NAVAL OPERATIONS

BEFORE THE
DEFENSE SUBCOMMITTEE
OF THE
HOUSE APPROPRIATIONS COMMITTEE
ON
FISCAL YEAR 1990 AND 1991 WEAPONS PROCUREMENT, NAVY

13 APRIL 1989

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE APPROPRIATIONS COMMITTEE

REAR ADMIRAL GEORGE N. GEE

Rear Admiral George N. Gee, U. S. Navy, a native of Lakewood, Ohio entered Officer Candidate School after graduating from the University of Notre Dame. Upon receiving his commission as an Ensign, he reported in 1962 for duty aboard the USS MONTICELLO (LSD 35) and served as both Combat Information Officer and Repair Officer.

His second assignment was aboard USS FURSE (DD 882) as Navigator, thereafter attending Naval Destroyer School in Newport, Rhode Island followed by duty as Engineer Officer USS SAMUEL B. ROBERTS (DD 823). In December 1966 he assumed command of the minesweeper USS LIMPKIN (MSC 195)and upon completion in 1968 reported for duty to the Systems Analysis Division (OP-96) in the Office of the Chief of Naval Operations.

Rear Admiral Gee attended Naval Postgraduate School in 1970, and then served as Executive Officer aboard USS BROOKE (DEG 1), followed by the Naval War College before returning to duty with the Chief of Naval Operations in the Nuclear Energy Division (OP-985). In August 1977, he was ordered as Prospective Commanding Officer of USS MERRILL (DD 976) and served aboard her as Commanding Officer for two years before reporting as Head, Surface to Surface Missile Section (OP-354H) for Chief of Naval Operations. He subsequently was assigned as Executive Assistant to the Deputy Chief of Naval Operations (Surface Warfare) (OP-03).

In 1983, he was ordered as Prospective Commanding Officer of USS VINCENNES (CG 49), and thereafter Commanding Officer from July 1985 to May 1987.

Rear Admiral Gee assumed his present position as Director, Surface Combat Systems Division (OP-35) in the Office of the Assistant Chief of Naval Operations (Surface Warfare) in June 1987.

He holds a Bachelor of Arts in English and a Master of Science in Physics and is also a designated Weapons Systems Acquisition Manager. Among his awards are the Legion of Merit with one star, Meritorious Service Medal with one star, Navy Commendation Medal, Battle Efficiency Ribbon, National Defense Medal and various Vietnam Service Medals.

Rear Admiral Gee is married to the former Julianne Bescos of Long Beach, California. They have four children: Pat, Dan, Theresa and Chris.

OVERVIEW

Mr. Chairman and distinguished members of the subcommittee, it is my privilege to appear before you to present the munitions requirements for the U.S. Navy contained in the Weapons Procurement, Navy (WPN) appropriation fiscal years 1990 and 1991.

The fiscal year 1990 budget request reflects a $429.0 million decrease from the fiscal year 1989 enacted level. The fiscal year 1991 budget request reflects a $607.9 million increase over the fiscal year 1990 request. While this biennial budget continues to reflect the favorable pricing trends and second source efforts initiated over the last few years, the fiscal year 1990 decrease is primarily driven by decreased quantities as a result of reduced funding levels. The increase in fiscal year 1991 is primarily the result of the production ramp up in programs such as the AMRAAM missile and MK-50 Advanced Lightweight Torpedo, and the accelerated buy-out of the Maverick missile program.

Congress has given improved ordnance readiness and sustainability top priority, and has supported the needed levels of WPN funding commensurate with that priority. Figure 1 displays Navy Total Obligation Authority (TOA) and WPN real growth from fiscal year 1981 thru fiscal year 1991. On average, WPN TOA maintained pace with total Department of the Navy TOA throughout this period. We have improved warfighting sustainability as ordnance procured with fiscal years 1983 through 1987 funding is being delivered to the fleet. The WPN TOA request drops below zero percent real program growth in 1990 for three basic reasons. First, program adjustments for projected competition and multiyear procurement savings which results in getting more inventory for less money. Second, completion of major programs such as Vertical Launch ASROC and SPARROW missile in fiscal year 1989. Third, the costs and quantities of TRIDENT II D-5, Tomahawk, Phoenix, HARM, Maverick, and Standard missiles decrease. While this reduction in WPN TOA will not significantly impact overall weapon sustainability due to the gains in sustainability of recent years, it will result in slower attainment of TRIDENT II D-5, Tomahawk, Phoenix, HARM, Maverick, and Standard missiles inventory objectives.

Navy procurement policies continue to emphasize the need to buy more weapons for the money provided by Congress. We fully expect to get the most out of every appropriated dollar through extensive use of competition at all levels of procurement and rigorous oversight of budget execution. Projected and actual WPN savings due to dual source competition through fiscal year 1994 is over $1.2 billion. Our budget submission reflects these and projected additional savings from competition and multiyear procurement in fiscal years 1990 and 1991. Figure 2 summarizes WPN competitive and multiyear procurement programs.

The fiscal year 1990 request reflects an 8.7 percent real program decrease from the fiscal year 1989 enacted level. The following major programs have procurement quantity decreases in the

1990 request over the 1989 enacted levels due to reduced fiscal year 1990 funding: Tomahawk Cruise Missile, Phoenix Missile, High Speed Anti-Radiation (HARM) Missile, Standard Missile, and Maverick Missile.

The fiscal year 1991 request reflects a 7.9 percent real program increase over the fiscal year 1990 request. The increase is due to ramp up to production for AMRAAM and MK-50 Torpedo, accelerated buy-out of Maverick Missiles, and long lead training equipment and second source costs for the Sea Lance Common ASW Standoff Weapon, which is planned for procurement in fiscal year 1992.

The fiscal year 1990 and 1991 WPN request insures that current cost efficient contractual structures are maintained and additional efficiencies through aggressive competitive repricing and program adjustments are accounted for where appropriate and prudent. With the strong support of Congress we have substantially improved our weapons posture as shown in Figure 3. We need to continue this important effort to ensure our sailors have quality munitions available in sufficient quantity when needed.

WPN SUMMARY

The fiscal year 1990 and 1991 Weapons Procurement, Navy Budget request consists of the five following Budget Activities,

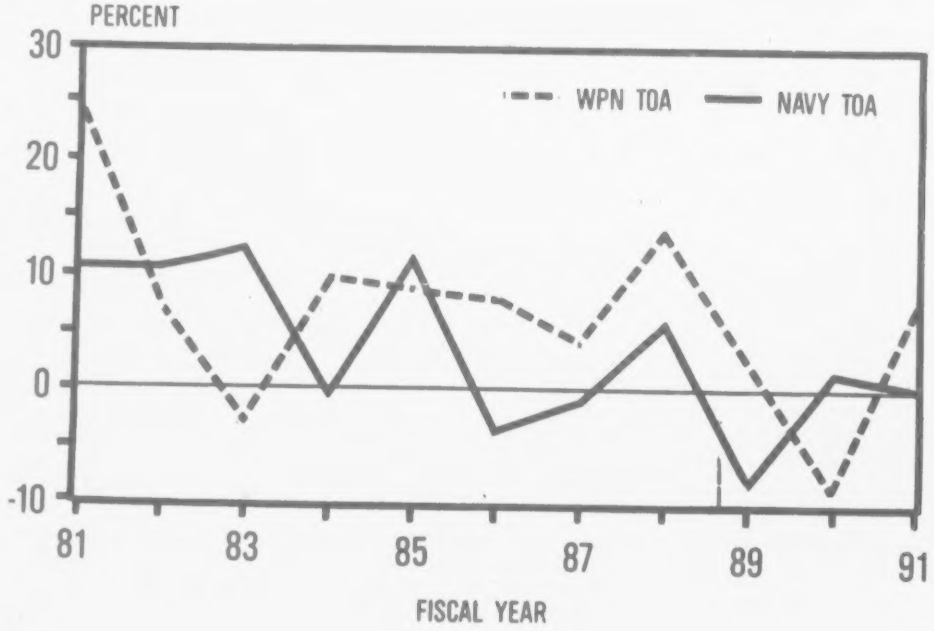
- Activity One, Ballistic Missiles.
- Activity Two, Tactical Missiles.
- Activity Three, Torpedoes and Related Equipment.
- Activity Four, Gun Systems and Small Arms.
- Activity Five, Spares and Repair Parts.

Figure 4 provides the proportion of the WPN appropriation by budget activity for fiscal years 1989 through 1991. There is a 2 percent distribution shift in WPN, from fiscal year 1989 to fiscal years 1990 and 1991 from Ballistic Missiles to Tactical Missiles and Torpedoes as the costs and quantities of the D-5 missile decreases and as we increase production of Harpoon, AMRAAM, HARM, and RAM missiles, and MK-50 torpedoes and initiate production of PENGUIN.

Fiscal years 1990 and 1991 procurement increases, new production starts and procurement completions are listed in Figure 5.

FIGURE 1

WPN vs TOTAL NAVY
REAL PROGRAM GROWTH



WPN DUAL SOURCE & MULTIYEAR PROCUREMENT

FIGURE 2

PROGRAM	START FULL COMPETITION
TOMAHAWK	FY-86
VLS CANISTERS	FY-86
HELLFIRE	FY-86
PHALANX CIWS	FY-88
STANDARD MSL	FY-88
FLEET SATCOM	FY-88 (FY-90 - MULTIYEAR)
MAVERICK MSL	FY-88 (FY-90 - MULTIYEAR)
MK-48 ADCAP	FY-88
AMRAAM	FY-89
PHOENIX	FY-89 (FY-90 - MULTIYEAR)
RAM	FY-90
MK-50 ALWT	FY-91

ORDNANCE SUSTAINABILITY IMPROVEMENT PERCENT INCREASE IN STOCKS ON HAND

FIGURE 3

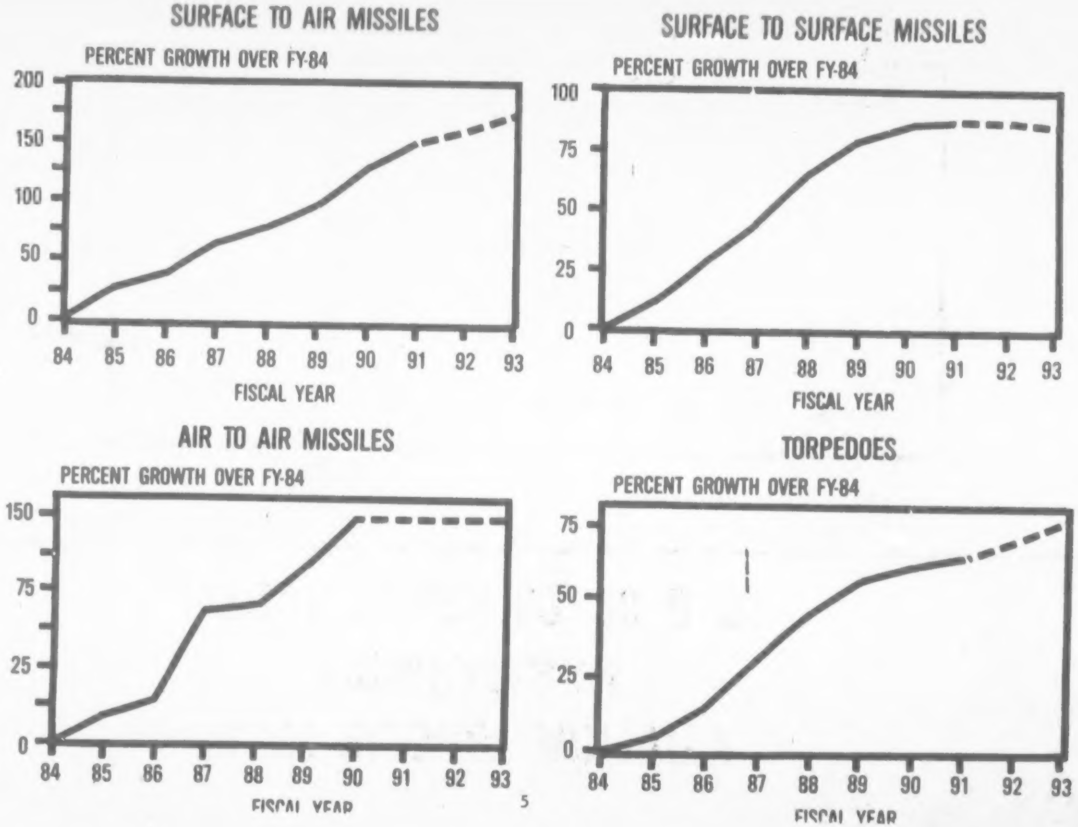


FIGURE 4

WPN BUDGET ACTIVITY COMPARISON
FISCAL YEARS 89, 90 & 91

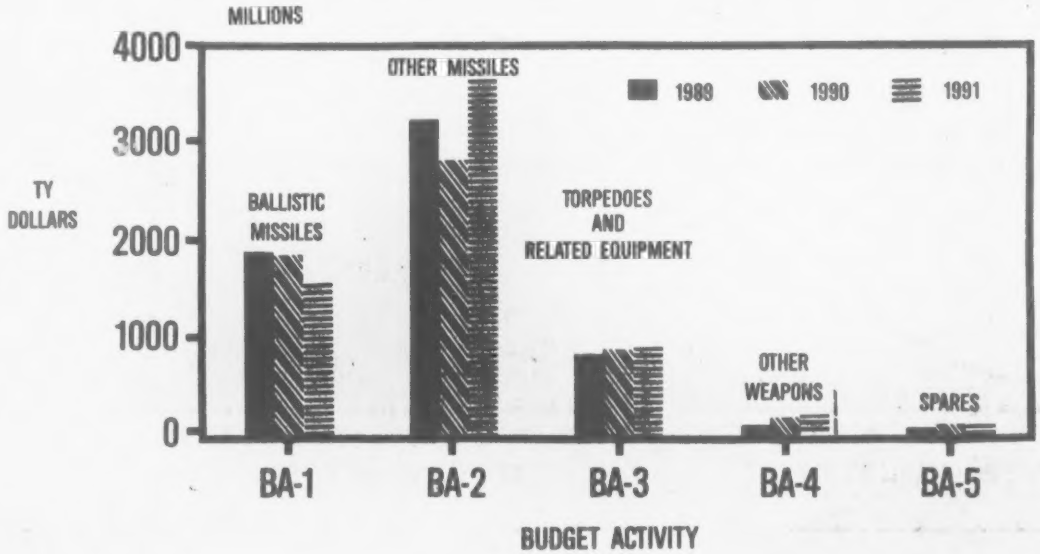


FIGURE 5

PROCUREMENT CHANGES

FY-90

INCREASES

AMRAAM
HARPOON
RAM
HELLFIRE
MK-50 ALWT
PHALANX CIWS
MK-75 76MM GUN MOUNT

STARTS

PENGUIN
EMATT

COMPLETIONS

TACTICAL AIR LAUNCH DECOY
VERTICAL LAUNCH ASROC

FY-91

INCREASES

AMRAAM
HARM
STANDARD
HELLFIRE
MAVERICK
MK-50 ALWT
MK-38 25MM GUN MOUNT

STARTS

NONE

COMPLETIONS

MK-75 76MM GUN MOUNT

Summarized details of the WPN fiscal years 1990 and 1991 request follows. A short narrative of each weapon grouping is followed by a chart for each line item which shows the fiscal year 1989 program and the fiscal years 1990 and 1991 request. Readiness support and modernization items are grouped together for clarity and convenience.

BUDGET ACTIVITIES I AND II - MISSILE PROCUREMENT

BALLISTIC MISSILES

The submarine based strategic ballistic missile force is a cornerstone of our nation's nuclear deterrent and the most survivable element of the Strategic Triad. Fiscal year 1990 marks the fourth year of procurement of TRIDENT II (D-5) missiles. The presence of TRIDENT II (D-5) missiles will markedly enhance the credibility of the Triad through longer range, improved accuracy and increased payload (capable of attacking the full target spectrum including very hard targets). The TRIDENT II (D-5), which will replace aging POSEIDON (C-3) and TRIDENT I (C-4) missiles, will attain initial operational capability in December 1989. It is being installed in new construction OHIO class submarines commencing with the ninth ship of the class and will be backfitted into the first eight beginning in fiscal year 1993. TRIDENT II funding requested in fiscal years 1990 and 1991 will support the production of TRIDENT II (D-5) missiles as well as the associated guidance,instrumentation systems, re-entry systems (less DOE components) and production support.

TOMAHAWK

The TOMAHAWK Cruise Missile Weapons System is a family of long range missiles consisting of nuclear land attack, conventional land attack (unitary warhead and conventional dispenser) and conventional anti-ship variants that can be launched from nuclear attack submarines and a variety of surface platforms. TOMAHAWK distributes our offensive capability over a large number of launch platforms, enhancing both our conventional and nuclear posture in a cost effective manner. With the development of this significant weapon system in our battleships, cruisers, destroyers and submarines, the Navy is moving from 15 offensive strike platforms (aircraft carriers) to more than 195 strike platforms. Steady progress is being achieved in the introduction of TOMAHAWK capability into the fleet. At the end of calendar year 1988, there were 29 surface ships and 39 submarines capable of carrying TOMAHAWK.

TOMAHAWK missiles are dual source produced by General Dynamics, Convair Division, of San Diego, California, and McDonnell Douglas Missile Systems Company of St. Louis, Missouri. This dual source competitive procurement enables us to maintain a high level of production capability at economical prices. The TOMAHAWK competition has resulted in actual and projected savings through fiscal year 1994 of over $550 million over a sole source procurement projection. Likewise, the production base offers the potential for increased mobilization rates, if required.

The TOMAHAWK Land Attack Missile with submunitions dispenser TLAM/D, achieved Initial Operational Capability in August 1988. The long range strike capability and accuracy of TOMAHAWK will complement our carrier based strike aircraft, reduce aircraft attrition and save lives.

The fiscal year 1991 request for TOMAHAWK MODS is a significant increase over the fiscal year 1990 and prior requests because of the retrofit of a new booster configuration to over 20 percent of submarine launched TOMAHAWKS. This booster will provide increased flexibility for submerged launching of TOMAHAWKS.

HARPOON

HARPOON is a versatile anti-ship missile which can be launched from ships, submarines or aircraft. This radar guided weapon has demonstrated high reliability and effectiveness in tests and fleet exercises. The fiscal years 1990 and 1991 requests contain funding for procurement of the Block 1C HARPOON missile. Fiscal year 1991 is the first year of procurement of Improved Harpoon. The Improved Harpoon is a low cost product improvement to retain Harpoon effectiveness by improving hit probability in complex ECM environments while retaining full standoff range and ensuring launch platform survivability. Improved electronic countermeasures of the HARPOON Dash 4 seeker are procured with funds in the HARPOON MODS line. Additionally, the fiscal year 1990 and 1991 requests include funding for air launched Standoff Land Attack Missiles (SLAM). This weapon employs the HARPOON propulsion and warhead sections with a MAVERICK Imaging Infrared (IIR) seeker, Global Positioning System (GPS) receiver-processor and a WALLEYE data link. Launched from the A-6 and F/A-18, SLAM provides a medium range standoff land attack capability.

Figures 6 through 8 itemize the fiscal years 1990/91 budget request for ballistic and cruise missiles.

FIGURE 6

BALLISTIC MISSILES (BA 1)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
TRIDENT II	66/1865.6*	63/1814.6*	52/1535.2*

- DESCRIPTION: SEA LAUNCHED BALLISTIC MISSILE FOR OHIO CLASS FLEET BALLISTIC MISSILE SUBMARINES. PROVIDES HARD TARGET KILL CAPABILITY

- PROCURES: TRIDENT II (D-5) MISSILES FOR BALLISTIC MISSILE SUBMARINES

- CONTRACT: COST PLUS INCENTIVE FEE: LOCKHEED MISSILES AND SPACE COMPANY

- ACHIEVEMENTS: STRATEGIC WEAPON SYSTEM, SUBMARINE AND FACILITY CONSTRUCTION ON SCHEDULE AND WITHIN COST. USS TENNESSEE (SSBN-734) THE FIRST TRIDENT II (D-5) CAPABLE TRIDENT WAS DELIVERED 6 WEEKS AHEAD OF SCHEDULE AND IS OPERATING FROM KINGS BAY, GA IN SUPPORT OF ON-GOING DEVELOPMENT TESTING. ALL TESTS TO DATE INDICATE WE WILL MEET OR EXCEED REQUIRED PERFORMANCE

* INCLUDES ADVANCE PROCUREMENT: FY-89 $228.1M, FY-90 $216.1M, FY-91 $218.6M

FIGURE 7

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
TOMAHAWK	510/706.9*	400/572.2	400/662.6

- DESCRIPTION: LONG RANGE, SUBSONIC CRUISE MISSILE, CONVENTIONALLY ARMED FOR ANTI-SURFACE WARFARE AND BOTH CONVENTIONALLY AND NUCLEAR ARMED FOR LAND ATTACK
- PROCURES: TLAM/N, TLAM C, TLAM/D, AND TASM FOR SUBMARINE AND SURFACE SHIP LAUNCH
- CONTRACT: FY-90/91: COMPETITIVE/FIRM FIXED PRICE: GENERAL DYNAMICS, MCDONNELL DOUGLAS
- ACHIEVEMENTS: SEPT 87 APPROVAL FOR FULL PRODUCTION FOR TASM, TLAM/N, TLAM C. NOV 88 TLAM/D APPROVAL FOR LIMITED PRODUCTION.

* INCLUDES ADVANCE PROCUREMENT: FY-89 $75.6M

FIGURE 8

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
HARPOON	119/167.2	190/214.1	184/229.8

- DESCRIPTION: SUBSONIC CRUISE MISSILE LAUNCHED FROM SUBMARINES, SURFACE SHIPS AND AIRCRAFT. DESTROYS HOSTILE SURFACE TARGETS. THE STANDOFF LAND ATTACK MISSILE (SLAM) VARIANT IS EFFECTIVE AGAINST FIXED TARGETS AND SHIPS IN HARBOR.
- PROCURES: FY-90 INCLUDES 142 BLOCK 1C HARPOON AND 48 SLAM MISSILES
  FY-91 INCLUDES 126 IMPROVED HARPOONS AND 58 SLAM MISSILES
- CONTRACT: SOLE SOURCE/FIRM FIXED PRICE: MCDONNELL DOUGLAS
- ACHIEVEMENTS: - 5000TH HARPOON MISSILE PRODUCED

AIR-TO-AIR MISSILES

PHOENIX

AIM-54C PHOENIX, carried by the F-14 interceptor, provides long range capability against high speed, high altitude targets and the unique ability to conduct nearly simultaneous multiple engagements against incoming targets. In 1986, Raytheon was awarded a contract to establish a second source for the Guidance Control Section (GCS). In the first competitive contract for the AIM-54C awarded in January 1989, the unit price of the GCS dropped 17% from the projected sole source price. In fiscal year 1988, Raytheon was awarded a contract to establish a second source for the FSU-10 Safety and Arming device.

AMRAAM

The Advanced Medium Range Air-to-Air Missile (AMRAAM) is the next generation all-weather, all-environment radar guided missile developed jointly by the Air Force and Navy to replace the AIM-7 SPARROW. AMRAAM is smaller, faster and lighter than SPARROW. AMRAAM incorporates an active radar in conjunction with an inertial reference unit and microcomputer system which makes the missile less dependent upon the aircraft fire control system. This advanced capability enables the pilot to aim and fire several missiles at multiple targets. Fiscal year 1990 is the second year of Navy procurement of AMRAAM. The initial missile buy in fiscal year 1989 will support Navy Initial Operating Capability (IOC) with the F-18C/D aircraft. The fiscal year 1990 buy will provide missiles required to complete on-going Follow-on Operational Test and Evaluation, of AMRAAM into the F-14D, with the remaining missiles going into the Fleet inventory. Figures 9 and 10 summarize our request for PHOENIX and AMRAAM.

FIGURE 9

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
PHOENIX	450/395.2	420/376.5*	420/326.7*

- DESCRIPTION: AIR-TO-AIR MISSILE DESTROYS HOSTILE AIR TARGETS WITH CONVENTIONAL WARHEADS AT LONG RANGE IN ALL WEATHER ENVIRONMENTS.
- PROCURES: AIM-54C FOR F-14 AIRCRAFT
- CONTRACT: FY-90 COMPETITIVE/FIXED PRICE, HUGHES/RAYTHEON
  FY-91 COMPETITIVE/FIXED PRICE, HUGHES/RAYTHEON
- ACHIEVEMENTS:
  - -- SECOND SOURCE FOR FSU-10 ESTABLISHED OCTOBER 88
  - -- APPROVAL FOR FULL PRODUCTION ACHIEVED JANUARY 89
  - -- FIRST COMPETITIVE CONTRACT AWARDED JANUARY 89

* INCLUDES ADVANCE PROCUREMENT: FY-90 $50M, FY-91 $15.0M

FIGURE 10

OTHER MISSILES (BA-2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
AMRAAM	26/34.8	150/129.8	800/382.5

- DESCRIPTION: NEXT GENERATION ALL-WEATHER, RADAR GUIDED ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE

- PROCURES: FY-90/91: AIM-120A AIR-TO-AIR REPLACEMENT FOR SPARROW FOR F-15, F-16, F/A-18 AND F-14. JOINT USN/USAF WITH USAF AS EXECUTIVE SERVICE

- CONTRACT: FY-90/91: COMPETITIVE/FIRM FIXED PRICE: HUGHES/RAYTHEON

- ACHIEVEMENTS:
    -- ROLLOUT OF FIRST PRODUCTION MISSILE OCTOBER 88
    -- FSD TESTING COMPLETED JANUARY 89
    -- SECOND SOURCE QUALIFICATION MISSILES FLIGHT TEST PROGRAM SUCCESSFULLY COMPLETED JANUARY 89

AIR TO SURFACE MISSILES

The Navy procures five air-to-ground missiles with WPN funding. Four of these weapons are employed by Navy tactical aircraft to perform their combat attack missions including anti-ship operations, ground support, defense suppression and interdiction. The fifth missile, PENGUIN, is an anti-surface missile fired by a LAMPS MK III helicopter.

HARM

HARM (High Speed Anti-Radiation Missile), the Navy and Air Force's premiere weapon for defense suppression, continues to be a success story. The prime contractor, Texas Instruments, is in its seventh consecutive year of on-time deliveries now at rates of 200 missiles per month. The fiscal year 1990 request includes procurement of 100 Low Cost Seeker (LCS) guidance sections from Ford Aerospace. The LCS program continues on schedule with head-to-head competition with Texas Instruments planned for fiscal year 1992.

HARM's complement, the loitering lethal decoy TACIT RAINBOW, was funded for fiscal year 1989 procurement of missiles for Navy operational testing. Due to slippages in TACIT RAINBOW's development schedule, operational testing will not be complete until fiscal year 1991. Therefore, the Navy has no procurement request for fiscal years 1990 and 1991.

MAVERICK

During the past year the Navy's heavyweight warhead variant of the IIR MAVERICK missile completed operational testing and will enter the Navy's inventory this spring. IIR MAVERICK substantially enhances Navy Tactical Air's stand-off attack capability. The Navy's fiscal year 1990 and 1991 request will be contracted as part of the Air Force's multi-year competitive procurement.

HELLFIRE

HELLFIRE is an air-to-ground missile procured in WPN for the U.S. Marine Corps. HELLFIRE is a semi-active, laser guided missile which will be used on USMC AH-1 helicopters as a ground support anti-armor weapon. This launch and leave missile system allows increased aircraft maneuverability during the attack phase so that a flight path can be used which minimizes exposure to enemy ground fire. This weapon is procured as a joint program with the Army as the executive service.

PENGUIN

PENGUIN is an air-to-surface infrared guided missile that is being acquired to provide an attack capability to enhance the effectiveness of the LAMPS MK III helicopter in its anti-surface warfare mission. The PENGUIN is being developed jointly by the U.S. and NORWAY under a Memorandum of Understanding between the United States Department of Defense and the Norwegian Ministry of Defense. The program schedule reflects development and operational testing from July 1988 through March 1990 with a Milestone III production decision during the third quarter of fiscal year 1990. This reflects a nine month schedule slippage since last year's testimony due to work stoppage caused by the 32 percent reduction of the kroner/U.S. dollar exchange rate, the bankruptcy/reorganization of the Norwegian missile subcontractor and engineering problems in development of Insensitive Munitions specifications in the rocket motor. Full scale engineering development and aircraft integration testing is now in progress with no more anticipated schedule delays.

Figures 11 through 14 summarize our proposed air-to-surface missile procurements.

FIGURE 11

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
HARM	1307/300.8	1162/292.2	1400/354.9

- DESCRIPTION: AIR-TO-SURFACE MISSILE DESIGNED TO DESTROY OR SUPPRESS ENEMY ELECTRONIC EMITTERS

- PROCURES: ANTI-RADIATION MISSILE FOR A-7E, A-6E, EA-6B, F-4G AND F/A-18 AIRCRAFT. JOINT USN/USAF PROCUREMENT WITH NAVY AS EXECUTIVE SERVICE

- CONTRACT: FY-90: TEXAS INSTRUMENTS, FFP; FORD AEROSPACE, 100 LCS GUIDANCE SECTIONS
  FY-91: TEXAS INSTRUMENTS, FFP; FORD AEROSPACE, 400 LCS GUIDANCE SECTIONS

- ACHIEVEMENTS: FULL PRODUCTION APPROVAL, NAVY LEAD FOR USN/USAF PROCUREMENTS,
  LOW COST SEEKER (LCS) FSED CONTRACT AWARDED TO FORD AEROSPACE.
  LOW COST SEEKER FIRST PRODUCTION SCHEDULED FOR FY-90.
  BLOCK IV (TEXAS INSTRUMENTS VERSION OF LCS) SCHEDULED IN FY-91.
  COMPETITION BETWEEN LOW COST SEEKER AND BLOCK IV IN FY-92.

FIGURE 12

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/CHANGE
MAVERICK	731/81.9	560/66.5*	2135/192.3*

- DESCRIPTION: AIR-TO-SURFACE MISSILE THAT PROVIDES NAVY AND MARINE CORPS TACTICAL AIRCRAFT WITH CAPABILITY TO ATTACK LAND AND SEA TARGETS FROM A MORE SURVIVABLE POSITION.

- PROCURES: IIR VARIANT OF MAVERICK MISSILE FOR USN AND USMC

- CONTRACT: FY-90/91: COMPETITIVE/MULTI-YEAR FIRM FIXED PRICE HUGHES AND RAYTHEON

- ACHIEVEMENTS: OPEVAL COMPLETED DECEMBER 88

* INCLUDES ADVANCE PROCUREMENT: FY-90 $6.5M, FY-91 $6.9M

FIGURE 13

OTHER MISSILES (BA-2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
HELLFIRE	1000/34.8	1098/50.4	1198/57.1

- DESCRIPTION: AIR-TO-GROUND LASER GUIDED MISSILE FOR GROUND SUPPORT
- PROCURES: AGM-114B WITH ARMY AS EXECUTIVE SERVICE: FOR USMC AH-1 HELICOPTERS
- CONTRACT: COMPETITIVE/FIRM FIXED PRICE: ROCKWELL, MARTIN MARIETTA
- ACHIEVEMENTS: APPROVED FOR FULL PRODUCTION MARCH 1986

FIGURE 14

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/CHANGE
PENGUIN	0/3.5*	64/43.3*	65/40.5

- DESCRIPTION: HELICOPTER LAUNCHED ANTI-SHIP MISSILE

- PROCURES: MK-2 MOD-7 PENGUIN ANTI-SHIP MISSILE FOR LAMPS MK-III, FIRE AND FORGET, PASSIVE IR-SEEKER

- CONTRACT: SOLE SOURCE/FIXED PRICE: VIA NORWEGIAN NAVAL MATERIAL COMMAND

- ACHIEVEMENTS: FULL SCALE ENGINEERING DEVELOPMENT AND AIRCRAFT INTEGRATION TESTING IN PROGRESS

* INCLUDES ADVANCE PROCUREMENT: FY-89 $3.5M, FY-90 $3.7M

SURFACE TO AIR MISSILES

STANDARD MISSILE

The STANDARD family of area defense missiles provides the Navy's first line surface-to-air defense against enemy aircraft and cruise missiles. It has been produced since 1968, constantly being improved to meet the advancing threat. There are two basic types of STANDARD missiles: Medium Range (MR) used on AEGIS and TARTAR combatants, and Extended Range (ER) used on TERRIER combatants. STANDARD missile is now being produced in four versions: SM-2 Block II MR and ER, the final orders were placed in fiscal year 1988; and SM-2 Block III MR and ER, which entered production in fiscal year 1988. The SM-2 Block III is the first production missile resulting from the STANDARD Missile Improvement Program initiated in 1984, and incorporates low altitude fuze enhancements developed under that program. Future gains from the STANDARD Missile Improvement Program will include a new warhead and further fuze enhancements incorporated into the SM-2 Block IIIA MR and ER, scheduled to enter production in fiscal year 1990; a dramatically advanced guidance system that will create the SM-2 Block IIIB, to be introduced as a retrofit program in fiscal year 1991 and a production program in fiscal year 1992; and a new booster rocket motor which will provide a greater engagement range capability to the AEGIS Weapon System. This will be the SM-2 Block IV now slated for fiscal year 1991 production.

By incrementally introducing each of these enhancements as they are released for production, the Navy gains in two ways. First, the most advanced configurations are built each year without disruption to production lines as only a small part of the missile is affected by each modification. Second, the new enhancements can also be produced in kit form to retrofit older missiles, thereby creating new missiles from existing inventory at minimal cost.

Although we are introducing our improved missiles as rapidly as they are released for production, budget driven reductions have reduced our order quantity for fiscal year 1990 to 590 missiles, a number below the economic order quantity. To meet this challenge we are stretching out our fiscal year 1989 buy of 1310 missiles over a 16 month period and compressing the fiscal year 1990 buy into the following eight months, thereby keeping a 900 missile per year production base while waiting for the more capable Block IIIB and Block IV missiles.

Competitive acquisition of all STANDARD missile components was implemented in fiscal year 1988 with the sole exception of the ER version's MK 30 sustainer rocket motor, an older rocket motor whose manufacturing technology cannot be economically duplicated and whose final procurement year will be 1990. The actual and projected savings achieved by competitive acquisition for through fiscal years 1994 have been dramatic, totaling over $420 million.Through the effective use of price competition we are buying our new advanced missiles for less than the cost of their immediate predecessors.

SM-2 Block II, III, IIIA and IIIB MR missiles are the primary air defense weapon for all 27 TICONDEROGA class AEGIS cruisers and 29 ARLEIGH BURKE class AEGIS destroyers; as well as the 6 ships in the CALIFORNIA and VIRGINIA classes of nuclear cruisers, and 4 KIDD class destroyers that will receive the TARTAR New Threat Upgrade (NTU) conversion. SM-2 Block II, III, and IIIA ER missiles are the primary air defense weapon for the 18 LEAHY and BELKNAP class guided missile cruisers, the nuclear cruiser LONG BEACH, and one destroyer,the MAHAN. These cruisers are planned to receive the TERRIER NTU conversion, and the MAHAN will be configured with the NTU Engineering Development Model. SM-2 Block IV, specifically developed for AEGIS and Vertical Launch System (VLS), will add a greater altitude engagement range and cross-range to the VLS fleet which includes 22 of the TICONDEROGA and all 29 of the ARLEIGH BURKE classes.

Teamed with our AEGIS and NTU combatants, SM-2, particularly Block III and beyond, provides the ability to conduct simultaneous multiple engagements against high and low profile missiles and aircraft. This capability is essential to counter the sophistication and numbers of weapons we face in potential air threats now and into the 1990's.

RAM

The Rolling Airframe Missile (RAM) is a joint program with the Federal Republic of Germany (FRG). RAM is a high firepower self-defense system against anti-ship capable missiles. It employs a dual mode passive radar frequency/infrared guidance system. The system is programmed for installation aboard combatants, amphibious ships and auxiliaries and will complement existing PHALANX point defense systems. RAM utilizes its own 21-cell reloadable launcher and occupies the same deck space as a PHALANX. The Navy plans dual source procurement of RAM on a competitive basis with Germany. The RAM Memorandum of Understanding (MOU) signed in August of 1987 by the U.S. and FRG complies with the provisions of the NATO Cooperative Project legislation.

RAM completed initial phases of development and operational testing in February 1987 and is scheduled for technical evaluation and the final phase of operational test and evaluation in 1990. The Secretary of the Navy approved limited production of RAM in April 1987 and Germany approved production in September 1987. RAM was certified as a NATO Cooperative Project in May 1988.

Figures 15 and 16 summarize the STANDARD missile and RAM procurement requests.

FIGURE 15

OTHER MISSILES (BA 2)

$M

WEAPONS	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
STANDARD MISSILE	1310/586.6	*590/310.6	900/552.0

- DESCRIPTION: SURFACE-TO-AIR, ENGAGE AND INTERCEPT AIRCRAFT, ANTI-SHIP MISSILES AND SURFACE SHIPS.

- PROCURES: FY-90: 175 AEGIS SM-2 BLK III
  325 AEGIS SM-2 BLK IIIA
  90 TERRIER SM-2 BLK III
  FY-91: 600 AEGIS SM-2 BLK IIIA
  300 AEGIS ER SM-2 BLK IV

- CONTRACT: FY-90: COMPETITIVE/FIRM FIXED PRICE: GENERAL DYNAMICS, RAYTHEON
  FY-91: SM-2 BLK IIIA - COMPETITIVE/FIRM FIXED PRICE: GENERAL DYNAMICS, RAYTHEON
  SM-2 BLK IV COMPETITIVE/FIXED PRICE INCENTIVE OPTION ON RDT&E DEVELOPMENT CONTRACT: RAYTHEON, GENERAL DYNAMICS

* WILL COMPETE AS AN EIGHT MONTH PROCUREMENT AND STRETCH FY-89 DELIVERIES OVER A 16 MONTH PERIOD.

FIGURE 16

OTHER MISSILES (BA-2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
RAM	260/51.8	580/90.3	540/86.9

- DESCRIPTION: SURFACE-TO-AIR SHORT RANGE HIGH FIREPOWER, LOW COST, LIGHTWEIGHT SELF-DEFENSE SYSTEM TO ENGAGE ANTI-SHIP MISSILES

- PROCURES: ROLLING AIRFRAME MISSILE FOR LCC, LPH, LHA

- CONTRACT: FY-90/91: COMPETITIVE FIXED-PRICE DUAL SOURCING BETWEEN RAMSYS(FRG) AND GENERAL DYNAMICS

- ACHIEVEMENTS: IN FSED, DT/OT TESTS SUCCESSFULLY COMPLETED FEBRUARY 1987
  US/FRG PRODUCTION MOU SIGNED 3 AUGUST 87.
  MILESTONE IIIA (APPROVAL FOR LIMITED PRODUCTION) FOR FY-88/89

SPACE SYSTEM

FLEET SATELLITE COMMUNICATIONS (UHF FOLLOW-ON)

The fiscal years 1990 and 1991 WPN appropriation request provides procurement and support funds for one space system which improves our warfighting capabilities: the UHF Follow-On Satellite, which is the heart of the Navy's Fleet Satellite Communications (FLTSATCOM) program.

The existing constellation of Ultra High Frequency (UHF) communication satellites (FLTSAT and LEASAT) employs eight satellites in four locations to provide key command and control links for mobile forces of the Department of Defense (DOD) and other Government agencies. The fiscal year 1990 request provides for procurement of the second and third replacement follow-on satellites and for procurement of Advance Economic Order Quantity parts. The fiscal year 1991 request provides for the procurement of the fourth through sixth follow-on satellites. The fiscal year 1990 and 1991 requests also provide for launch services. The Navy is preparing a report, as requested by the House Armed Services Committee, on the feasibility of adding an Extra High Frequency (EHF) capability to the UHF Follow-On satellites. The Navy is planning to provide this report to the Congress this spring.

Congress approved UHF Follow-On for multiyear procurement in fiscal year 1989 Congressional language. A competitive, fixed price contract was awarded to Hughes Aircraft Company in July 1988. Deputy Secretary of Defense certified to Congress on 3 February 1989 UHF Follow-On for multiyear procurement. The Multiyear Option portion of the contract was signed 15 February 1989. The first UHF Follow-On satellite is scheduled to become operational in 1992. The oldest members of the currently operational FLTSAT/LEASAT constellation are expected to reach the ends of their operational lives in the early 1990's. Support of the FLTSATCOM UHF Follow-On satellites will avoid disruption of vital communications capability. Fiscal years 1988 and 1989 provided funding for production engineering and procurement of the first satellite. A total of nine satellites will be procured through fiscal year 1992, which includes one in-orbit spare. The contract includes an option for an additional satellite in fiscal year 1993. Changes in this fiscal year 1990/91 request, as opposed to multiyear exhibits provided to Congress last year, reflect reductions due to the actual contract price, the exclusion of launch services from the multiyear award since minimal savings would accrue, and the decision to delete funding which had been previously budgeted to support the recurring and non-recurring cost of assuring Space Transportation System (STS) Launch capability. The UHF Follow-On Satellites will be launched by Expendable Launch Vehicles (ELV).

Figure 17 summarizes the space system procurement request.

FIGURE 17

$M

SATELLITE	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
FLEET SATELLITE COMMUNICATIONS (UHF FOLLOW-ON)	0/173.6*	2/312.8*	3/201.0

- DESCRIPTION: UHF FOLLOW-ON GENERATION TO REPLACE END OF LIFE FLTSAT/LEASAT COMMUNICATIONS CONSTELLATION

- PROCURES: FY-90 - UHF FOLLOW-ON SATELLITES NUMBER TWO AND NUMBER THREE; ADVANCED ECONOMIC ORDER QUANTITY LAUNCH SERVICES
  FY-91 - UHF FOLLOW-ON SATELLITES NUMBERS FOUR, FIVE AND SIX; LAUNCH SERVICES

- CONTRACT: COMPETITIVE, FIVE YEAR, FIXED PRICE, WITH MULTIYEAR OPTION AWARDED TO HUGHES AIRCRAFT COMPANY, JULY 1988.

- ACHIEVEMENTS: FY-89 CONGRESS APPROVED UHF FOLLOW-ON FOR MULTIYEAR PROCUREMENT
  DEPSECDEF CERTIFIED TO CONGRESS 3 FEBRUARY 1989 THAT UHF FOLLOW-ON MULTIYEAR PROGRAM OPERATING AND SUPPORT COSTS ARE FULLY FUNDED IN CURRENT FYDP

* INCLUDES ADVANCE PROCUREMENT: FY-89 $77.0M, FY-90 $141.0M

READINESS AND MODERNIZATION

Realistic peacetime training is the cornerstone of successful combat readiness. In Budget Activities I and II, readiness issues are addressed through funding aerial targets for fleet training and support for in-service weapons. Modernization of in-service weapons is funded through the various WPN modification lines. Also described in this section is the funding request for Vertical Launch System (VLS) canisters.

AERIAL TARGETS

Aerial targets provide the representative threats needed to properly evaluate weapons systems and to provide for an effective Fleet training program. The fiscal years 1990 and 1991 request includes funding for both towed and launchable targets. The BQM-74C is a recoverable subsonic target, while AQM-37C is a non-recoverable, supersonic target, which replicates high altitude, high speed threats. Also funded are the material costs for the conversion of F-86 aircraft into QF-86 full-scale aerial targets, conversion of TALOS missiles into MQM-8X supersonic full-scale targets, target auxiliary equipment required for target control and augmentation, and BQM-34S support costs. Figure 18 displays the fiscal years 1990 and 1991 procurement request for aerial targets.

TRIDENT I SUPPORT

Although TRIDENT I missiles are no longer being procured, funding is required to support missile readiness flight testing necessary throughout the operational lives of the weapons.

WEAPONS/MISSILE INDUSTRIAL FACILITIES

Capital improvements to eleven Weapons Industrial Facilities owned by the government and operated by contractors are funded in the WPN Weapons Industrial Facilities and Missile Industrial Facilities lines. These improvements include environmental and safety related repairs.

Figure 19 summarizes the fiscal years 1990 and 1991 requests for readiness procurement associated with missile testing and rework for TRIDENT I and Weapons and Missile Industrial Facilities.

MISSILE MODIFICATIONS

Missile modifications include a number of essential performance, reliability, maintainability and safety alterations which are based upon testing results and fleet feedback. The modifications request covers essential expenses for ensuring that our missile inventory remains reliable as well as capable of defeating the evolving threat. Fiscal years 1990 and 1991 STANDARD missile modifications are low altitude fuze modifications. The TOMAHAWK modifications include the Mission control module Block III upgrade and the Reference Measurement Unit Computer (RMUC) reliability improvements. The fiscal year 1991 modifications are the MX-111 Improved Booster for the submarine launched TOMAHAWK. HARPOON modifications in fiscal years 1990 and 1991 include Improved Harpoon modification, and Non-Special Discriminate Seekers (NON-SPDI), Mid-Course Guidance Units and memory pages. The Sparrow modification request will continue to provide a low altitude fuze retrofit, improved fusing in chaff environments, and the missile homing improvement program which will greatly enhance the Sea Sparrow's ability to counter advance threats by exploiting several of the target's characteristics to aid in homing. The fiscal year 1991 PHOENIX modification request provides for the incorporation of changes to missile components/sections to upgrade the AIM-54A/C inventory to correct deficiencies uncovered during fleet testing or use.

The AIM-9R upgrade SIDEWINDER, to be carried by the F-14, F-18 and other AIM-9M capable aircraft will provide U.S. Forces with a superior air-to-air missile by increasing the counter-countermeasures capabilities and head-on acquisition range. In addition, the AIM-9R will provide increased background discrimination against low flying targets. Full Scale Development (FSD) contract was awarded to Ford Aerospace in March 1987. Captive carry flight testing and buildup of engineering test vehicles are in process. The $7.0 million fiscal year 1991 SIDEWINDER Mods request is for the nonrecurring costs of production start-up. Figure 20 displays the missile modifications fiscal years 1990 and 1991.

VERTICAL LAUNCHING SYSTEM CANISTERS

Vertical Launching System (VLS) canisters for TOMAHAWK, STANDARD missiles and Vertical Launch ASROC are funded in the WPN Other Missile Support line. One VLS canister is required for each VLS missile variant procured. Canisters are used as a storage/shipping container for missiles ashore and as the magazine and firing tube aboard ship.

Figure 21 summarizes the Other Missile Support request for fiscal years 1990 and 1991.

FIGURE 18

OTHER MISSILES (BA-2)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
AERIAL TARGETS	109.2	124.7	121.2

- DESCRIPTION: POWERED REMOTE CONTROLLED TARGETS, TOWED TARGETS, AND TARGET AUGMENTATION SYSTEMS USED FOR AIRCRAFT AND SHIP TRAINING AND OPERATIONAL TESTS

- PROCURES: FY-90/91: SUBSONIC BQM-34S, HIGH ALTITUDE SUBSONIC AQM-37C, SUBSONIC BQM-74E, FULL SCALE OF QF-4S, SUPERSONIC MQM-8X/MQM-8G(ER)* SEA SKIMMER AND TOW TARGETS

- CONTRACT: VARIOUS, MOST ARE COMPETITIVE FIXED PRICE: BEECH, TELEDYNE-RYAN, NORTHROP, ALLIED BENDIX, SOUTHWEST AEROSPACE

- ACHIEVEMENTS: SUCCESSFULLY AWARDED SECOND SOURCE CONTRACT TO BRUNSWICK CORPORATION FOR THE AQM-37C WITH FIRST COMPETITION IN FY-91

* PREVIOUSLY PROCURED WITH RDT&E FUNDS AND ONLY AVAILABLE FOR T&E. PROCUREMENT WITH WPN WILL MAKE THEM AVAILABLE FOR FLEET TRAINING AS WELL AS T&E

FIGURE 19

BALLISTIC MISSILES (BA-1)/TACTICAL MISSILES (BA-2)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
TRIDENT I	1.9	1.2	1.2
MISSILE INDUSTRIAL FACILITIES	2.6	2.3	2.4
WEAPONS INDUSTRIAL FACILITIES	13.7	16.8	24.7

- DESCRIPTION: MISSILE TESTING AND REWORK FOR TRIDENT I CAPITAL TYPE REHABILITATION PROJECTS (ENVIRONMENTAL, SAFETY, MAJOR REPAIRS AND FACILITIES RESTORATION) FOR ELEVEN GOVERNMENT-OWNED, CONTRACTOR-OPERATED MISSILE INDUSTRIAL FACILITIES.

FIGURE 20

OTHER MISSILES (BA-2)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
TOMAHAWK MODS	7.2	3.3	25.8
SPARROW MISSILE MODS	44.1	29.0	8.9
SIDEWINDER MODS			7.0
PHOENIX MODS	.2	0	3.0
HARPOON MODS	9.5	12.8	15.8
STANDARD MISSILE MODS	27.5	11.7	13.0

- DESCRIPTION: COMPONENTS TO UPGRADE PERFORMANCE OF MISSILE AND INCORPORATES SAFETY, MAINTAINABILITY, AND RELIABILITY IMPROVEMENTS

- PROCURES: TOMAHAWK BLOCK III UPGRADE AND MK-111 IMPROVED BOOSTER
SEA SPARROW (RIM-7M) LOW ALTITUDE FUZE
SIDEWINDER AIM-9R GUIDANCE CONTROL AND AIRFRAME RETROFIT
PHOENIX UPGRADE AIM 54-C INVENTORY
HARPOON RELIABILITY, MAINTAINABILITY, PRODUCIBILITY, AND IMPROVED HARPOON
STANDARD MISSILE LOW ALTITUDE IMPROVEMENTS (G,C&A AND ORDNANCE)
STANDARD MISSILE -1 MK56 DTRM MODIFICATIONS

FIGURE 21

OTHER MISSILES (BA-2)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
OTHER MISSILE SUPPORT:			
VLS CANISTERS	15.3	14.6	28.8

- DESCRIPTION: VLS CANISTERS FOR STANDARD AND TOMAHAWK MISSILES AND VERTICAL LAUNCH ASROC (VLA)

- PROCURES: VLS CANISTERS FOR STANDARD AND TOMAHAWK MISSILES FOR DD-963 CLASS VLS CONFIGURED AND CG-47 CLASS SHIPS. ALSO PROCURES SMALL AMOUNT OF VLS UNIQUE EQUIPMENT FOR WEAPONS STATIONS AND INTEGRATED LOGISTICS SUPPORT (ILS) FOR CANISTERS PROCURED WITH WPN FUNDS

BUDGET ACTIVITY III TORPEDOES AND RELATED EQUIPMENT

TORPEDOES

MK-48 ADCAP TORPEDO

The Navy is proceeding with fleet introduction of the submarine launched MK-48 Advanced Capability (ADCAP) Heavyweight Torpedo as the front line replacement for the MK-48 Mod 4 submarine-launched ASW torpedo. The MK-48 (ADCAP) provides a substantial improvement in capability over the MK-48 Mod 4. Changes in the guidance and control system improve the weapon's effectiveness against quiet submarines. Advanced technology will provide improved performance in high seas and in other difficult environmental conditions. Moreover, improvements in propulsion give ADCAP the speed and deep diving capability required to counter the current and developing threat. The torpedo will meet the challenge of the deep diving, high speed submarine through the 1990's and is essential to maintaining the tactical advantage for our attack submarine force. Results of operational testing, assessed by the Director, Operational Test and Evaluation (DOT&E), have been forwarded to the appropriate Congressional Committees. Additionally, the Navy's Live Fire Test and Evaluation (LFT&E) report, and the Office of the Director, Live Fire Test Program have been forwarded to the appropriate Congressional Committees. All statutory requirements necessary to support proceeding beyond the low rate of initial production have been satisfied. The Secretary of the Navy authorized full production of the ADCAP after Office of the Secretary Defense's submission of both the Live Fire Testing Evaluation and the Assessment of Opertionial Testing . Full competition is in place between Hughes and Westinghouse. Figure 22 summarizes the fiscal years 1990 and 1991 request for the MK-48 ADCAP Torpedo.

MK-50 LIGHTWEIGHT TORPEDO

The MK-50 is an advanced lightweight torpedo that will combat the present and projected submarine threat well into the next century, replacing the MK-46 to counter the evolving Soviet threat. In addition to being interoperable with all U.S. Navy surface and air Anti-Submarine Warfare (ASW) platforms now employing the MK-46, the MK-50 will be a payload for the Common ASW Standoff Weapon - Sea Lance. The first phase of initial operational testing was completed in November 1988. Testing results supported proceeding with technical evaluation and transitioning to low rate initial production in fiscal year 1989. The final phase of initial operational testing is scheduled to begin December 1989. Full Scale Development will be completed in fiscal year 1991 for the MK-50, with directed dual source production commencing in fiscal year 1989. The prime contractor is Honeywell. The second source contractor, Westinghouse, will begin qualification torpedo assembly late in fiscal year 1989. The fiscal year 1990 request supports directed procurement of 200 torpedoes. Full competition is scheduled for 1991. Figure 23 summarizes the fiscal years 1990 and 1991 request for MK-50 Torpedoes.

MK-46 TORPEDO MODIFICATIONS

The MK-46 torpedo will continue to serve the Navy through the 1990's while the MK-50 production is ramped up to replace the MK-46 torpedo. In an effort to improve MK-46 operational capabilities against the projected threat, an electronic change package/modifications program was initiated in fiscal year 1989. Modifications to the MK-46 will enhance the torpedo's performance in shallow water and against targets operating in environmentally challenging scenarios. Fiscal years 1990 and 1991 MK-46 modifications request supports procurement of firmware required to continue this important program.

SEA LANCE

Sea Lance is the Anti-Submarine Warfare (ASW) Stand-Off Weapon System which utilizes a missile with a MK-50 torpedo payload. It will be employed by submarines and Vertical Launching System equipped surface ships. This weapon system significantly extends the ASW engagement area for both platforms. In submarines it supplements the MK-48 ADCAP torpedo against high speed transiting submarines and during post-engagement reattacks. In surface ships, Sea Lance supplements LAMPS helicopter attacks with an all-weather capable system.

Figures 24 and 25 display the requested funds for torpedo modifications and Sea Lance programs.

FIGURE 22

TORPEDOES/RELATED EQ (BA 3)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
MK 48 ADCAP	320/481.1	320/493.6	320/408.8

- DESCRIPTION: SUBMARINE LAUNCHED HEAVYWEIGHT TORPEDO USED AGAINST SURFACE AND SUBSURFACE TARGETS
- PROCURES: IMPROVED HEAVYWEIGHT TORPEDO CAPABILITY AGAINST QUIET SUBS AND HIGH SEAS ENVIRONMENT
- CONTRACT: FY-90/91: FIRM FIXED PRICE: HUGHES AIRCRAFT/WESTINGHOUSE
- ACHIEVEMENTS: APPROVAL FOR FULL PRODUCTION GRANTED 23 JANUARY 1989

FIGURE 23

TORPEDOES/RELATED EQ (BA 3)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
MK 50 ALWT	140/197.4*	200/269.1	270/328.5

- DESCRIPTION: ADVANCED LIGHTWEIGHT TORPEDO THAT WILL COMBAT PRESENT AND PROJECTED SUBMARINE THREAT WELL INTO THE NEXT CENTURY.

- PROCURES: ADVANCED TORPEDO FOR SURFACE AND AIR LAUNCH AND PAYLOAD FOR SURFACE SHIP & SUBMARINE LAUNCHED SEA LANCE

- CONTRACT: FY-90: FIXED PRICE INCENTIVE. LOW RATE INITIAL PRODUCTION (LRIP II).
  FY-91: COMPETITIVE FIXED PRICE. FIRST YEAR OF COMPETITION BETWEEN HONEYWELL AND WESTINGHOUSE.

- ACHIEVEMENTS: COMPLETED FIRST PHASE OF INITIAL OPERATIONAL TESTING (OT-IIA) (NOV 88). LRIP I CONTRACT AWARDED.

* INCLUDES ADVANCE PROCUREMENT: FY-89 $36.5M

FIGURE 24

TORPEDOES/RELATED EQUIPMENT (BA 3)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
MK-46 MODS	0	8.7	11.6

- DESCRIPTION: MODIFIES THE MK-46 TORPEDO TO IMPROVE PERFORMANCE AGAINST SUBMARINES OPERATING IN SHALLOW WATER, AND AGAINST SUBMARINES OPERATING AT SHALLOW DEPTHS AND SLOW SPEEDS. INCLUDES AN ANTI-TAMPER MODIFICATION TO PREVENT REVERSE ENGINEERING OF THE TORPEDO'S COUNTER-COUNTERMEASURE LOGIC CIRCUITRY.

- PROCURES: FIRMWARE AND ASSEMBLY KITS.

- CONTRACT: SOLE SOURCE FIRM FIXED PRICE: HONEYWELL FOR FIRMWARE AND ASSEMBLY KITS. MINOR PROCUREMENT OF ASSEMBLY HARDWARE BY NUWES KEYPORT. INSTALLATION BY NUWES KEYPORT (TORPEDO MAINTENANCE DEPOT).

FIGURE 25

TORPEDOES/RELATED EQUIPMENT (BA 3)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
SEA LANCE	0	1.8	46.3

- DESCRIPTION: ANTI-SUBMARINE WARFARE (ASW) STAND-OFF WEAPON SYSTEM WITH A MK-50 TORPEDO PAYLOAD EMPLOYED BY SUBMARINES AND VERTICAL LAUNCHING SYSTEM EQUIPPED SURFACE SHIPS.

- PROCURES:
  - FY-90: FUNDS TECHNICAL TRANSFER OF DATA TO SECOND SOURCE
  - FY-91: SECOND SOURCE HARDWARE PROCUREMENT, AND PROCUREMENT OF MISSILE TEST SETS, SEA LANCE TRAINERS, PAYLOAD INSTALLATION TRAINERS, AND COMMON SUPPORT EQUIPMENT

- CONTRACT:
  - FY-90: BOEING (LEADER)- COST PLUS AWARD FEE TO EXISTING R&D CONTRACT WITH WPN ADDED BUT NOT CONTRIBUTING TO THE AWARD FEE
    FOLLOWER (SELECTION 6/90)- FIRM FIXED PRICE FOR FAMILIARIZATION.
  - FY-91: FIXED PRICE INCENTIVE. PRICED OPTION FOR QUALIFICATION OF FOLLOWER.

- ACHIEVEMENTS: SUCCESSFULLY COMPLETED DYNAMIC LAUNCH TEST IN JANUARY 89

ASW READINESS AND IMPROVEMENT

ASW TARGETS

Anti-Submarine Warfare (ASW) targets provide a training exercise capability on and off range for torpedoes, sonars, sonobuoys, and Magnetic Anomaly Detection (MAD) equipped aircraft. The Mobile Target MK 30 MOD 1 is a direct substitute for submarines in providing air, surface, and submarine ASW units a target for realistic exercises on three-dimensional underwater ranges.

Fiscal years 1990 and 1991 are the first two years of procurement for the MK 39 Expendable Mobile ASW Training Target (EMATT). It is a small, self-propelled underwater vehicle that may be air launched from both fixed wing and rotary ASW aircraft or hand-launched over the side of ASW surface ships. It provides basic, open ocean sonar training operation consisting of a dynamic run trajectory that is actively controlled in depth and course with pre-programmable run maneuvers. The MK 39 EMATT is also capable of generating a magnetic field (anomaly) detectable by all current Navy Magnetic Anomaly Detectors (MAD).

TORPEDO SUPPORT EQUIPMENT

Most anti-submarine weapons used in training, test, and quality assurance are recovered, as contrasted to missiles, which are expended in the course of firing exercises. The Torpedo Support Equipment funding line procures components and supplies necessary to rework ASROC missiles and MK-46, MK-50, MK-48 Mod 4 and ADCAP torpedoes after training and test firings. The amount of funding required is directly related to these requirements.

ASW RANGE SUPPORT

ASW Range Support funding provides training range devices and weapon proofing equipment used to support operations at the Navy's eight underwater ranges. A majority of the range support funding supports training exercises, with the balance dedicated to acceptance proofing of new and reworked weapons and test projects related to service weapons. Test, qualification and fleet torpedo firings average 3700 per year.

SWIMMER WEAPONS SYSTEM

The Swimmer Weapons System provides unique weapons and equipment required by Naval Special Warfare Groups One and Two (SDV and SEAL Teams) to carry out beach clearance, underwater and direct action missions. There are now seven SEAL Teams deployed with the Fleet.

Figures 26 through 28 are the Navy's request for ASW readiness support funding.

FIGURE 26

TORPEDO/RELATED EQ (BA 3)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
ASW TARGETS	0	12.9	25.0

- DESCRIPTION: ASW TRAINING TARGETS FOR ALL TORPEDOES, SONARS, SONOBUOYS, AND MAGNETIC ANOMALY DETECTION (MAD) EQUIPPED AIRCRAFT

- PROCURES: FY 90: 1,105 MK 39 EXPENDABLE MOBILE ASW TRAINING TARGETS (EMATT)

  FY 91: 1,460 MK 39 EMATT.
  4 MK 30 MOD 1 MOBILE TARGETS

- CONTRACT: EMATT: FY 90 - SOLE SOURCE, FIRM FIXED PRICE: SIPPICAN
  FY 91 - COMPETITIVE, FIRM FIXED PRICE

  MK 30: FY 91 - SOLE SOURCE, FIRM FIXED PRICE: LORAL

FIGURE 27

TORPEDO/RELATED EQ (BA 3)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
TORPEDO SUPPORT EQUIPMENT	23.2	39.0	38.8
SWIMMER WEAPON SYS	1.9	1.0	1.0
ASROC	0	9.3	10.1

- DESCRIPTION: TORPEDO SUPPORT EQUIPMENT
  SWIMMER WEAPON SYSTEM FOR SPECIAL OPERATIONS FORCES
  ASROC MISSILE REPLACEMENT COMPONENTS

- PROCURES: EXPENDABLE COMPONENTS OF EXERCISE TORPEDOES SUCH AS BATTERIES, CABLES, IGNITERS, EXERCISE HEADS, FUEL TANKS, AND EXHAUST VALVES
  SWIMMER WEAPON SYSTEM
  ASROC MISSILE COMPONENTS CONSUMED DURING FIRINGS

- CONTRACT: TORPEDO SUPPORT EQUIPMENT COMPETITIVE: VARIOUS CONTRACTORS
  ASROC FIRM FIXED PRICE: VARIOUS CONTRACTORS

FIGURE 28

TORPEDO/RELATED EQ (BA-3)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
ASW RANGE SUPPORT	22.5	24.2	24.1

- DESCRIPTION: TRAINING RANGE, WEAPON PROOFING RANGE EQUIPMENT AND FLEET SUPPORT EQUIPMENT FOR USE ON NAVY'S UNDERWATER RANGES. INSTRUMENTS AND SUPPORTS FLEET EXERCISES AND ASW WEAPON PRODUCTION ACCEPTANCE TESTING

- PROCURES: RECOVERY EQUIPMENT PINGER COMPONENTS, EXERCISE TARGETS AND TARGET COMPONENTS

- CONTRACT: COMPETITIVE/FIRM FIXED PRICE: VARIOUS

BUDGET ACTIVITY IV - OTHER WEAPONS

GUN SYSTEMS AND SMALL ARMS

PHALANX CIWS

PHALANX CIWS is funded and modernized through the WPN account. The Navy plans to install 869 systems, of which 446 will be procured with WPN funds, the remainder being SCN in support of new construction. The CIWS testing program, one of the most rigorous ever conducted, has consistently demonstrated this system as a potent, reliable terminal defense against anti-ship cruise missiles. All PHALANX systems procured with fiscal years 1990 and 1991 funds will be Block 1 Baseline 2 configuration, which includes reliability and maintainability improvements. The CIWS modification program procures Block 1 and upgrade kits which enhance the reliability and maintainability of existing systems and provide an improved capability against high diving missiles. Beginning in fiscal year 1988, PHALANX Block 1 systems and ORDALTS were procured competitively between General Dynamics and General Electric.

As a result of the increased air threat throughout the Middle East, the Navy has ensured that every ship scheduled to receive PHALANX CIWS is so equipped prior to sailing for that region. In consideration of this requirement, the PHALANX production program was realigned to provide some earlier deliveries to the Fleet. Additionally, systems earmarked for non-deploying ships have been diverted to near-term deployers. The requested increase in procurement quantities in fiscal years 1990 and 1991 over fiscal year 1989 reflect an acceleration of the installation of Block 1 CIWS mounts in ships that do not have CIWS.

MK 19 40MM MACHINE GUN & 25MM GUN MOUNT

Short range, high volume firepower is important to a variety of Navy ships, patrol craft, and shore units. The MK-38 25MM gun and MK-19 MOD 3 40MM machine gun satisfy this requirement. The MK-19 MOD 3 fires 40MM grenades to a maximum range of 2400 yards. It is an effective close range defensive weapon providing area coverage. The 25MM gun system will replace obsolete 20MM MK-16 guns as the main battery for 65 foot patrol boats and as general purpose short range armament for current and new construction amphibious and auxiliary ships. We have installed the MK-38 25MM gun on all ships deploying to the Persian Gulf to provide a simple, rapid fire close-in gun capability.

SMALL ARMS

The funding request for Small Arms continues the Navy's emphasis on procurement of various weapons essential to shore base security (anti-terrorist defense) and ship protection in addition to outfitting our expanding Special Operations Forces (SOF).

Special Operations Forces small arms account for 11% of the fiscal year 1990 and 1991 small arms procurement.

GUN MODIFICATIONS

The Gun Modification program funding summarized in Figure 33 provides: Ordnance Alterations (ORDALTS), hardware to correct safety and shock deficiencies and improve operability, reliability, maintainability, and system availability of all Navy gun systems from the 16 inch to 20MM. Alterations are developed in direct response to testing and fleet needs.

Figures 29 through 33 summarize the fiscal years 1990 and 1991 budget request for gun systems, small arms and gun modifications.

FIGURE 29

OTHER WEAPONS (BA 4)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
CIWS PHALANX	5/16.6	20/60.0	19/62.0
CIWS MODS	54.3	63.8	80.7

- DESCRIPTION: SURFACE SHIP QUICK REACTION, AUTONOMOUS 20MM GUN SYSTEM FOR TERMINAL DEFENSE AGAINST CRUISE MISSILES AND AIRCRAFT
- PROCURES: FY-90: 20 NEW INSTALLATION SYSTEMS AND BACKFIT BLOCK 1 CAPABILITY
  FY-91: 19 NEW INSTALLATION SYSTEMS AND BACKFIT BLOCK 1 CAPABILITY
- CONTRACT: COMPETITIVE/FIRM FIXED PRICE: GENERAL DYNAMICS, GENERAL ELECTRIC
- ACHIEVEMENTS: BLOCK 1 OPERATIONAL TEST EVALUATION COMPLETES MAY 88

FIGURE 30

OTHER WEAPONS (BA-4)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
25 MM GUN MOUNT	57/9.3	22/4.9	55/9.7

- DESCRIPTION: 25MM STAND ALONE HIGH FIREPOWER MK-38 MACHINE GUN FOR SHIPS AND PATROL BOATS. RAPID INSTALLATION

- PROCURES: MK 38 GUN AND MK 88 GUN MOUNT

- CONTRACT: ARMY SOLE SOURCE/MULTI-YEAR PROCUREMENT: MCDONNELL DOUGLAS GUN.

FIXED PRICE: MK 88 MOUNT ASSEMBLED BY NSWC/CRANE

FIGURE 31

OTHER WEAPONS (BA 4)

WEAPON	FY-89 $M/COST	FY-90 $M/COST	FY-91 $M/COST
MK 19 40MM MACHINE GUN	0	25/.5	25/.5

- DESCRIPTION: 40MM GRENADE STAND ALONE MK-19 MACHINE GUN FOR SOF, SEABEES, AND SMALL BOAT UNITS (SBU'S). TEMPORARILY BEING EMPLOYED IN SURFACE COMBATANTS TO PROVIDE ADDITIONAL CLOSE-IN SELF DEFENSE AGAINST SMALL BOAT THREAT IN PERSIAN GULF
- PROCURES: MK-19/3 MACHINE GUN, MK-64/8 MOUNT AND MK-16/2 STAND
- CONTRACT: ARMY SOLE SOURCE/MULTI-YEAR PROCUREMENT: SACO DEFENSE GUN AND MOUNT. FIXED PRICE: MK-16/2 STAND ASSEMBLED BY NSWC/CRANE

RESTART OF PROCUREMENT AFTER FY-88/89 PROCUREMENTS ZEROED BY CONGRESS

FIGURE 32

OTHER WEAPONS (BA 4)

WEAPON	FY-89 $M/COST	FY-90 $M/COST	FY-91 $M/COST
SMALL ARMS	9.8	10.8	14.3

- DESCRIPTION: VARIOUS WEAPONS .50 CAL AND BELOW FOR SHORE BASE, SHIP SECURITY AND SPECIAL OPERATIONS FORCES

FIGURE 33

OTHER WEAPONS (BA 4)

WEAPONS	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
GUN MOUNT, MODS AND SUPPORT EQUIPMENT	15.2	21.1	32.9

- DESCRIPTION: ROUTINE RELIABILITY AND MAINTAINABILITY MODS TO 5" 54, 3" 50, 5"/38, 16"/50 AND 75/76MM GUNS, AND MODS UNDER $2 MILLION FOR OLDER GUN SYSTEMS

- PROCURES: FY-90: ACQUISITION OF TWO MK75 GUN SYSTEMS FOR U.S. COAST GUARD ROTATABLE POOL. COMMENCE REACTIVATION OF 16"/50 GUN BARREL REWORK FACILITY AT WATERVLIET ARSENAL NEW YORK

  FY-91: CONTINUED REACTIVATION OF 16"/50 GUN BARREL REWORK FACILITY AT WATERVLIET COMMENCE 5"/54 PRODUCT IMPROVEMENT PROGRAM

BUDGET ACTIVITY V - SPARES

Spares procurement is a vital element of weapons readiness. WPN spares and repair parts are in two categories: initial and replenishment spares. Both are procured to support the operating forces and the industrial activities which repair weapons. The quantities of initial spares required is determined in proportion to the number of end items such as torpedoes and guns which are procured and the required lead times to meet fielding of those end items. Funding for replenishment spares is based on the weapon rework cycle and the historical failure rate of weapon components. The Navy's request for Spares funding is $94.4 million in fiscal year 1990 and $93.0 million in fiscal year 1991. This funding level represents about 1.6 percent of our total 1990 and 1.4 percent of our total 1991 WPN request and provides the capability to maintain our weapons in the highest state of combat readiness. Figure 34 summarizes the Spares funding request.

FIGURE 34

SPARES (BA 5)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
INITIAL SPARES			
BA-1	6.4	4.7	4.5
BA-2	33.7	55.9	48.5
BA-3	9.3	8.2	10.8
BA-4	6.6	6.3	6.8
REPLENISHMENT SPARES	17.3	19.3	22.4
TOTAL SPARES	73.3	94.4	93.0

- DESCRIPTION: INITIAL AND REPLENISHMENT SPARES DIRECTLY ASSOCIATED WITH INITIAL PROCUREMENT OF WEAPONS FUNDED WITH WPN

SUMMARY

The fiscal years 1990 and 1991 WPN request is a balanced and carefully constructed program which will improve weapons sustainability in an affordable manner. The aggressive pricing based on realized and projected savings is structured to realize our objective with acceptable risk.

Within the WPN Account we have pursued a policy of establishing competition wherever possible. The benefits of such a policy at all levels of procurement are both financially and militarily sound. The WPN programs in this request continue improvement in weapon inventories across the full spectrum of conflict that equates to a steady increase in weapon availability to the Fleet. The Committee's support of past WPN budget requests has enabled achievement of a stabilized, cost efficient program. The Committee's support of the fiscal years 1990 and 1991 request is needed to continue this important sustainability effort.

MEALS READY TO EAT

Mr. MURTHA. Let me announce to the Committee that we will have MREs to eat on Wednesday if you want to try them out.

Mr. HEFNER. Mr. Chairman—will the gentleman yield?

Is this the same thing that we find at Fort Hood and other places that the Army is eating in the field?

Mr. MURTHA. Yes.

Mr. HEFNER. I would like to respectfully decline. I have been that route. What day will that be?

Mr. MURTHA. Eleven-thirty on Wednesday. We are having nothing but the best.

Mr. HEFNER. Green beans——

Mr. MURTHA. Sausage and beans.

The gentleman from Washington.

MK-48 ADCAP TORPEDO

Mr. DICKS. Thank you, Mr. Chairman.

Admiral, more than $700 million has been appropriated in the last two years for procurement of the MK-48 ADCAP torpedo. An additional $494 million is requested in 1990 for 320 more torpedoes. Several recent reports have raised serious questions concerning the MK-48 ADCAP. Depite the serious issues raised by several reviewers, Acting Secretary Taft approved the program for full-rate production in January 1989. We realize that the ADCAP is better than the existing MK-48 and that software changes may further improve its capabilities. However, is that good enough for a program which will end up costing $6 to $7 billion? In addition, we have heard too many times that "one small software fix and everything will be fine." Witness the B-1B.

Please give us your comments on the following observations: From the OSD Operational Test and Evaluation Report on the MK-48 ADCAP December 8, 1988, signed by Jack Krings: "As tested, the MK-48 ADCAP is ———."

Admiral GEE. Let me comment on that, if I could.

There were four basic issues which came out of the operational test and evaluation. One involved weapon effectiveness and that was centered around ———. The initial ADCAP program software was not originally designed to handle ———. There is a P3I program which does that and there will be follow-on testing conducted this year and in 1990 against ———.

The second major issue was under-ice testing. ———. There was an issue regarding whether or not the targets were fully representative. We tested against ——— which was needed "because of safety purposes" to be constrained to a depth of ———. Follow-on testing is scheduled against our best coated submarines and we have under development a fast deep target which will be scheduled for testing later in fiscal year 1989, which will allow us to take the weapon down to its full depth performance envelope.

The final issue which may have been brought up was warhead lethality was not demonstrated. The warhead on the weapon did not change.

You may have seen the photographs in the Mediterranean where the heavyweight MK-48 MOD 4 broke up a cruiser, cut it in half with one shot. We have had in-water tests over 15 years and the weapon has performed flawlessly.

The MK-48 is the premiere heavyweight torpedo in the world. There is nothing that can compete with it. We have a P3I program and have a guidance package in the weapon which allows us to expand its performance and the Navy is doing exactly that.

Mr. MURTHA. Why shouldn't you test it before we go forward?

Admiral GEE. The weapon has been tested against the original specifications for which the ADCAP was developed.

Mr. MURTHA. But even Mr. Taft says in his letter that it only demonstrates minimum lethality of the ADCAP against three classes of targets.

Admiral GEE. I believe that statement is in there because ———. We had long testimony by the Navy before the Seapower Subcommittee along with Dr. Krings and along with GAO on the MK-48 ADCAP ———.

Each submarine carries on the order of ——— so it is a question of single-shot lethality.

Mr. MURTHA. This is the Navy live fire test report classified secret, copy 5, 20 December 1988. ———. The recent threats and projected threats for which no lethality estimates are available are expected to comprise nearly half the threat in the year 2000. It must be considered a threat of the highest priority.

Admiral GEE. For the case of hull rupture, we are talking about single-shot total destruction of the submarine. In the case of some of the ———. There is no platform in the world that can withstand that kind of overpressure.

The question is whether or not mission abort versus total hull rupture and sinking is meaningful. The answer is that it absolutely is.

Mr. DICKS. Let's just halt for a moment.

We were told up under the ice that you only have about ———. Isn't that correct. ———?

Mr. MURTHA. ———.

Mr. DICKS. So you are talking about ———. You are talking about ———. Based on everything that has happened operationally with torpedoes, that is the best———

Mr. MURTHA. They think that was good. I didn't think it was good because it is such an improvement.

Admiral GEE. They were talking about MK-48 ADCAP?

Mr. DICKS. They say that when you operate these things, not in the engineering shop; when you are firing them, you are in luck if you get ——— that gets to the target.

Admiral GEE. Yes, sir.

Mr. DICKS If that is the operating rate, then we are not talking about ———. We are talking about ——— to the target; is that correct?

Admiral GEE. If one agrees that ——— is correct. Now, of that ——— not all of that is related directly to the torpedo. That is the result of the entire detect-and-engage sequence.

Mr. MURTHA. The gentleman is saying the field says that the latest torpedo they use has a ——— potential of hitting the target.

Admiral GEE. Yes, sir. If one were to use those figures, one would have to ———.

Mr. DICKS. What about these countermeasures that we also have heard about? ———.

Admiral GEE. ——— environments for both the MK-50 torpedo and MK-48 ADCAP are very important. The algorithims and computations needed to deal with ———. That is a software change in the torpedo, not a hardware change.

Mr. DICKS. That means it is probably more difficult. You know, when people come up here now and tell us about software changes, we listen a lot better.

Admiral GEE. We know how to ———.

Mr. DICKS. Let's go through the rest of these items and then you can comment briefly.

This is Krings' letter of December 8: "Test limitations precluded operational testing of the torpedo throughout its entire envelope; i.e., deep, fast, in all possible environments, under-ice, against fully representative targets, target with ——— diesel submarines, et cetera."

What about that?

Admiral GEE. Against the ——— at the time that the OPEVAL was done in the MK-48 ADCAP, we didn't have the resources available to do that. We have some submarines with ——— on them. Those submarines were employed at the time.

We are going back and will be testing this and next year against the ——— although by all of our projections we don't believe that the ——— is going to have a meaningful, detrimental effect on the MK-48 ADCAP performance.

Mr. DICKS. What about diesel submarines?

Admiral GEE. We didn't test it against a diesel submarine, but the diesel submarine not ——— should not influence the performance of the weapon. ———. The other part of the spectrum was testing the torpedo to full depth. For safety reasons against our own submarines, we could not shoot below ———. That was a safety restriction because we have manned submarines.

We have under development a deep, fast unmanned target which is being prototyped this summer and should be available for some testing later on this year which will allow us to test down to a ——— depth. So when the MK-48 ADCAP went through OPEVAL, the deep, fast target was not available.

Mr. DICKS. ———?

Admiral GEE. Yes.

Mr. DICKS. Does the ———.

Admiral GEE. Yes, sir. They can operate at ———.

Mr. DICKS. What about the ———?

Admiral GEE. It has a ———. That is stronger. It is the ———. A total hull rupture is complete break up of the submarine. A mission abort where the submarine is so severely damaged it cannot carry out its mission without surfacing or returning to port, from a warfighting point of view, even though we haven't wasted the target, is no longer a threat nor will it be a threat for a length of time to U.S. forces.

Mr. DICKS. What about the ballistic missile forces, the Typhoons and Yankees and Deltas? Can they go below ———.

Admiral GEE. I believe so.

Mr. DICKS. So being able to test below ——— is absolutely essential?

Admiral GEE. Yes, but very few operations will take place ———.

Mr. DICKS. "The fully integrated warhead could not be operationally tested and the reliability of other warhead components could not be evaluated."

Admiral GEE. The warhead lethality, the warhead on the MK-48 ADCAP is identical to that on the MK-48, which has been tested in routine water tests over 15 years.

Currently, a single ADCAP will ——— order of battle. In the year 2000, a single ADCAP will ———?

The ADCAP warshot-sink exercise conducted in July 1988 against a surface combatant hull positively demonstrated the enormous energy that this warhead puts out.

The live fire test report forwarding letter certified the MK-48 ADCAP testing program was valid, relevant, and sufficient for meeting the requirements of live fire test legislation for programmatic decisions.

I would not want to be anywhere near a thousand-pound MK-48 warhead when it goes off, particularly underwater. I think that we can get into the fact as to how much the warhead has been tested and where. We have 15 years of proven performance.

Mr. DICKS. You brought up the Navy's live fire test. It says here that from the assessment of Navy live fire test and evaluation of the MK-48 ADCAP Torpedo program report prepared by the Director of Live Fire Testing in the Office of the Under Secretary of Defense Acquisition, "Estimates of surfacing and mission abort are based on computer models and limited test data ———." What about that?

Admiral GEE. That is a true statement. Hull rupture means the end of the submarine. Anything less than hull rupture is subject to analytical and technical judgments. But I think we have proven over time that those judgments can be very accurate and very reliable.

Mr. DICKS. But the estimates of surfacing and mission abort are based only on computer models and limited test data, right?

Admiral GEE. Yes, sir; that is correct, but when we develop and certify our computer models, we use as much real world data and actual testing results as we can to get a computer model which replicates the weapon and allows us that type of predictability. We almost have to do it by computer model.

At any place on the submarine where I hit him, the mission abort effects will be different and for every type environment they will be different. There is no way we could live fire test to all mission abort-type criteria. We have to depend upon computer models to give us a statistical data base across a wide variety of scenarios and aspects of engagement to get a good understanding of how the weapon will perform.

Mr. DICKS. There is another statement ———. The Navy's estimates are derived from models and extrapolations. These indicate that the ———.

Admiral GEE. We have not built an unmanned submarine that is the same size and volume as ———. The cost of such a program, I expect, would be on the order of billions.

I believe that the Navy is very confident and DOT&E are, too, that our understanding of the performance of the MK-48 ACDAP is a good, solid analytic understanding and that we are moving forward to make sure that the weapon will handle ———. We are going ahead with the tests under-ice ——

Mr. DICKS. When are you going to have that ——— issue resolved?

Admiral GEE. I would hope—let me ask Admiral Carlson about that.

MK-48 ADCAP SOFTWARE PROBLEMS

Mr. DICKS. Who is doing the software work?

Admiral CARLSON. The software work is being done both by our primary laboratory and the prime contractor for the weapon.

The prime contractor is——

Mr. DICKS. Honeywell?

Admiral CARLSON. Not for the MK-48—Hughes Aircraft Company in California.

Mr. DICKS. They are doing the software work?

Admiral CARLSON. They do our software work; yes, sir.

Mr. DICKS. Do they have a subcontractor that does the software or do they do it themselves?

Admiral CARLSON. I don't know the answer to that. Most of our companies sub out by hiring additional people to work——

Mr. DICKS. Software is a national problem. So when people come here and say we are going to have easy fixes on software, we are very skeptical about that. I am curious if you have talked to these people and can you tell us that they have fixes?

Admiral CARLSON. Software is the application of the fix. The fix is in the torpedo logic. ———.

The initial logic for the torpedo was designed to ———. If you take another one and you put it in, you could do the same thing, it would be a ———. There is an infinite variety of locations where the ———. This takes a great deal of testing of the algorithm.

Mr. DICKS. Torpedoes have so much duration. If it has to go into ———?

Admiral CARLSON. Yes, sir.

Admiral GEE. Mr. Dicks, if I could comment on that. The torpedo will always be ———. By the way we target, we know we are targeting that. ———. En route to the submarine, it can encounter countermeasures.

Regarding the software, the design and algorithms in the software are developed by the Navy in concert with a very special group of people basically out of the University of Pennsylvania.

It is proprietary software and is very closely guarded. Hughes and Westinghouse are competitors in the MK-48 ADCAP. They will merely take these algorithms developed by the Navy and the academic community and they will implement those into the software to change the logic of the MK-48.

Mr. DICKS. Why didn't we do that in the first place?

Admiral GEE. Because we didn't have all of it developed. The MK-50 torpedo led the way in development of countermeasure software.

The algorithms are not simple because the torpedo is dealing with the acoustical environment at the same time it is dealing with the countermeasure.

Mr. **McDade**. As a matter of information, you said the University of Pennsylvania. Did you mean Penn State?

Admiral **Gee**. I meant Penn State; yes, sir.

Mr. **McDade**. Two very different schools.

Mr. **Dicks**. Admiral, the General Accounting Office made many of the same observations in a report issued last August. The GAO recommended that DOD not proceed beyond low-rate production until the ADCAP demonstrated capabilities ———. What we are wondering is, are you proceeding too fast on a program that doesn't work as well as it should and one that has not been adequately and realistically tested? Are we going to end up with a weapon of marginal usefulness or one that will have to be improved later at great additional cost?

Admiral **Gee**. We do not believe that we are proceeding too fast. In fact, we believe, sir, that getting this weapon out there is vital.

That was the judgment of the Secretary of Defense ultimately and he was aware both of the operational evaluation report, the reports of the DOT&E, and the reports of live fire testing when he approved the Navy's decision to go ahead beyond low initial production up to 320 MK-48 ADCAP torpedoes a year.

We face a severe submarine threat globally from the Soviets. This torpedo outperforms by order of magnitude the existing MK-48.

Mr. **Dicks**. But if 50 percent of the threat ———?

Admiral **Gee**. We believe it will because we believe that the programs that we have underway right now, which we are testing in 1989 and 1990, follow-on test evaluation regarding the ———.

Mr. **Dicks**. Why not go at a slower rate, get those fixes proven, and then put them into the systems rather than ramping this thing up now?

We get into this mess all the time. We believe you guys and it doesn't work the way you told us it would work.

Admiral **Gee**. It takes two years to build hardware. It does not take very long to change software logic.

Mr. **Murtha**. We are running into a lot of software problems. The C-17 was held up because the Air Force didn't talk to the software people, they depended on the general contractor to take care of the problem, so a multi-billion dollar program has been delayed because of software.

The B-1, we are hearing so many problems about software that we just are getting hesitant to believe that you can solve these problems as readily and as easily as you say—software is a problem. So it is not insignificant. We believe it is a substantial problem.

What about the priority of this torpedo as far as the Navy is concerned? What is your priority?

Admiral **Gee**. It is absolutely top priority and that is why—

Mr. **Murtha**. Are you talking for just the submarine force or about the Navy top priority?

Admiral **Gee**. I am talking about the Navy. It is one of our top five priority weapons.

I would like to quote a comment, and this is a true comment from a submarine skipper about the MK-48 ADCAP. He said, "I would rather have one half load of MK-48 ADCAPs than a full load of MK-48 MOD-4's."

Mr. DICKS. These guys out there said the same thing. The submarine people that we were with this weekend said that ADCAP was far superior to the MK-48. So there is no doubt that this is a step in the right direction.

Admiral GEE. We have no reason to believe that it will not perform under the ice or that it will not perform against ——— and we know how to do the software.

We are changing logic in a computer. The algorithms are done.

Mr. MURTHA. We hear that all the time. We have to see it demonstrated and that is what concerns us.

What is the priority? Go over the priority, because this is a program that has some problems. For the record, what is the priority for the Navy for this particular weapon system?

Admiral GEE. The best I can say is this. Within the 42 different weapon systems that I will testify to today, it is certainly within the top five. That is why the Navy has put forward the investment into this program.

Mr. MURTHA. Mr. McDade?

MK-50 TORPEDO

Mr. McDADE. Thank you. Mr. Chairman.

As long as we are on torpedoes, let's go to the MK-50.

The 1990 budget includes $269.1 million for 200 MK-50 lightweight torpedoes, the successor to the MK-46. Bring the Committee up to date on the status of the program, including award of low-rate initial production contracts for 1989.

Admiral GEE. Yes, sir.

The MK-50 was recommended for approval by the Defense Acquisition Board for low-rate initial production in summer 1989, what we call milestone IIIA.

We expect to get formal approval by May of 1989. Overall, the full-scale development program with Honeywell, the prime contractor, is over 75 percent complete. We estimate that they will complete the full-scale development program under their cost-plus incentive fee contract below the ceiling price in January 1991.

The critical design review, the final technical software release and initial operational testing have been successfully accomplished during the past year. The 200-B, that is the production MK-50 torpedo designation, will be TECHEVAL'ed and OPEVAL'ed this year. The 200B torpedoes have been delivering since November of 1988. Test equipment, including the complex torpedo system tester, is now operational and we expect to start TECHEVAL later on this month.

Mr. McDADE. You have had direction from the conferees to think about greater involvement of the second source in full-scale development. Has the Navy had an opportunity to comply with that suggestion, greater involvement of a second source?

Admiral GEE. Yes, sir. We will be fully competitive, firm fixed-price between Honeywell and Westinghouse beginning in 1991.

In 1989, we were fixed-price incentive fee for LRIP 1, a directed award split 76–64 torpedoes between Honeywell and Westinghouse. In 1990, we will still be on a fixed-price plus incentive fee for LRIP 2. That will be a directed buy and we should be under full competition in 1991.

Let me ask Admiral Carlson to add anything he would like to that.

Admiral **Carlson**. Yes, sir.

The status of the program is it is proceeding in accordance with the schedule———

Mr. **McDade**. Let me stop you because your answer to me was really directed toward production.

My question was about full-scale development. Are you going to respond to second source and full-scale development,

Admiral **Carlson**. Yes sir.

The direction we received was to involve the follower more fully into the engineering development contract. We have complied with that direction by having Westinghouse participate in all design reviews, to review the drawings, to take and sticker-approve each of the drawings for the production lots, and to participate on a continuing basis in the development that remains within the program. They attend every design reviews, every status briefing.

Mr. **McDade**. Sounds good.

The conferees also directed that before TECHEVAL and obligation of annual procurement funds, that the Secretary of Defense had to certify that full-scale engineering development criteria are met. When do you think that certification will be made?

Admiral **Gee**. I expect you should receive that in a week or two. The milestone decision has been made. That letter is on the Secretary's desk for release.

Mr. **McDade**. Did you say that status of the design of the MK–50 torpedo—what is the status of the design?

Admiral **Gee**. The design of the MK–50 is basically complete. When we go into Technical Evaluation in May and Operational Evaluation later on this fall, we will be going to with the production torpedoes known as the 200–B. The design is basically complete.

Mr. **McDade**. Do you think the baseline drawings are in a condition that they should be for a program that is about to enter low-rate production?

Admiral **Carlson**. Yes, sir.

Of the hundreds of drawings that we have, we are at the point now, we are at some 92—over 90 percent have been stickered or agreed to by the follower and we are delivering torpedoes.

Mr. **McDade**. Have you not had a lot of changes in the baseline drawings in the last couples of years?

Admiral **Carlson**. Yes, sir.

We would not have full-scale engineering development if we were ready to go to production at the beginning.

Mr. **McDade**. You are now about to go to low rate, and have there been so many changes that you have concerns, that perhaps there are so many changes going on that you are not ready for that phase yet?

Admiral CARLSON. No, sir. I would not have that concern because these are fixed-price contracts; so if there is change, the contractor who has signed up to produce this in a fixed-price manner would have to introduce the change at this cost.

Mr. McDADE. You don't think we are going to get a program that is not workable; are we going to get a program that does work, you can go to production and you are going to get a weapon that is going to be a workable weapons?

Admiral CARLSON. Yes, sir. We have completed Technical Evaluation or Operational Evaluation on this weapons, but at this point, you have to have some of the devices before you can evaluate them.

There may be changes. We hope there will not be too severe a change.

Mr. McDADE. We don't want you to end up in low rate and have a lot of problems and not get a workable weapon.

What value do you see in having a producibility analysis and functional design review performed for the MK-50?

Admiral CARLSON. We do producibility analyses and functional design reviews on a continuing basis for all the programs.

Mr. McDADE. Are you doing them now? I am taking about an independent assessment.

Admiral CARLSON. We have an independent assessment in that the follower is doing——

Mr. McDADE. Westinghouse?

Admiral CARLSON. Westinghouse is doing an assessment. They sticker the drawings and go through the design.

Mr. McDADE. As far as you are concerned, that follower in the full-scale development phase is enough to give you an independent appraisal of the general concept?

Admiral CARLSON. Yes, sir.

Mr. McDADE. You don't think you need anybody outside that loop?

Admiral CARLSON. We have the laboratory. We have an ISEA, In-Service Engineering Agent. We have both of the producers.

Additionally, I have an independent group, that I call a technical assessment panel that works for me, of experts that continually oversee this program and provide me advice as to its producibility and its status.

PHALANX AMMUNITION

Mr. McDADE. Okay.

Let me ask you about Phalanx ammunition, please.

The Navy recently notified the Committee that it was changing its procurement strategy for penetrators for ammunition for the Phalanx Close-In Weapon Systems. Previously, the plan was to have annual competitions between qualified depleted uranium and tungsten producers.

Now the plan is to use only tungsten beginning in fiscal year 1990. What caused the Navy to change its mind?

Admiral LOFTUS. The changes were in order to produce full competition in the system, sir, and that is why a full competition for all up around would be started in fiscal year 1990.

Mr. **McDade**. You only plan to use tungsten beginning in 1990?

Admiral **Loftus**. That is right.

Mr. **McDade**. Why did you change your mind about the competition between tungsten and depleted uranium?

Admiral **Loftus**. The basic reason for the change to tungsten was cost. The all up round producer had initially come in with a proposal that said going to tungsten as the only material would be a cheaper way to go.

Mr. **McDade**. You have no problem with that?

Admiral **Loftus**. No.

Mr. **McDade**. Did you do live fire testing of both the depleted uranium and tungsten to support this decision?

Admiral **Gee**. We did extensive live fire testing over a period of four to five years against both types of ammunition. ———.

So I think there was a direct warfighting reason that the Secretary recommended the shiftover.

Mr. **McDade**. That is all supported by the live fire tests?

Admiral **Loftus**. Yes, which were done at China Lake extensively.

Mr. **McDade**. Did the Navy test the most advanced type of depleted uranium to support the decision?

Admiral **Loftus**. That is correct.

Mr. **McDade**. What impact will this decision have on the domestic depleted uranium industry, which also supplies penetrators to the Army for tank ammunition?

Admiral **Loftus**. I will have to provide that for the record.

[The information follows:]

We have attempted to minimize impact on the domestic depleted uranium industry by working closely with the Army throughout the decision-making process. By making our fiscal year 1989 procurement approximately 80 percent depleted uranium, we are maintaining this production base in conjunction with the Army's increasing procurement of tank ammunition which uses this material.

Mr. **McDade**. Is there sufficient tungsten available from domestic sources to support the Navy's program?

Admiral **Loftus**. Yes.

Mr. **McDade**. What, if anything, would cause the Navy to change its mind and allow depleted uranium to compete for penetrator requirements?

Admiral **Gee**. I can't think of anything other than from a warfighting point of view, unless some type of alloy of depleted uranium proved to be better than tungsten in penetrating cruise missiles. ———.

Mr. **McDade**. Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Hefner?

ENHANCED MODULAR SIGNAL PROCESSOR

Mr. **Hefner**. Thank you, Mr. Chairman.

We are pleased that the Navy's number one priority is anti-submarine warfare. I think that the entire Committee shares that concern. I would like to ask you about the SQQ-89 surface combat system. I understand it represents one of your substantial investments in this area. This system is a significant user for the new standard signal processor that the Navy has designated to enhance its ASW effort.

This new processor, EMSP, is ready to go into production and I am told it is significantly more efficient, eight times less costly on a life cycle basis, than the processor you are using now. When do you plan to put EMSP into the SQQ-89 system?

Admiral LOFTUS. We expect to have a production decision on EMSP this summer, Mr. Hefner. I think that, as you probably know, the EMSP is a system which is undergoing transition right now.

There are several decisions which need to be made for this program, and I expect that we will probably see within the next few weeks those decisions ironed out. Admiral Meinig can expand on that.

Admiral MEINIG. I am Admiral George Meinig, Naval Sea Systems Command.

We believe the EMSP program has proceeded very soundly and the Navy is in the process of refining and solidifying its position with respect to EMSP introduction in all of the applicable Navy antisubmarine warfare programs.

It is, as you accurately state, a very advanced processor that is life-cycle efficient compared to the current system. Those were all considerations in the Navy's endeavor to get along with EMSP, sir.

Mr. HEFNER. Why don't you field the SQQ-89 with the EMSP system and avoid paying for two signal processors at the cost of retrofit?

Admiral MEINIG. I believe the best answer to that is a programmatic answer in the context that the SQQ-89, which is one of the programs under Admiral Carlson's cognizance, is in its baseline phase now and will have an improved version in the mid-nineties.

The UYS-1, which is the Navy's current standard ASW signal processor, satisfies the ASW signal processing requirements of the SQQ-89 as it is being manufactured today. And the EMSP greatly increased processing efficiency will be used as one of the performance levers in the SQQ-89 improved program to optimize the ASW performance of that particular system.

Mr. HEFNER. What is the effect on the unit price of the SEM-B unit if the SQQ-89 system is included rather than wait for the later SEM-E to be available?

Admiral MEINIG. The EMSP SEM-B is a more expensive unit than the EMSP SEM-E. The SEM-E is a less expensive unit, but it is not ready for production now, which is why the Navy is interested in getting into production on the EMSP SEM-B configuration.

Mr. HEFNER. You could go ahead. Don't you have a production line on the SEM-B now? Could you put that into the surface ships? The way I understand it, the SEM-E is compatible with the SEM-B.

Admiral MEINIG. I need to answer that in two parts, sir. The Navy is about to make a production decision, our Milestone 3 decision, on the enhanced modular signal processor. That is scheduled in the next few months.

The Navy feels that we are ready for production. As a matter of fact, I sent a special team to North Carolina just last week, headed by Mr. Willoughby, and their conclusion was that they are ready for production. I expect that production decision to be a satisfactory one which will allow us to satisfy the Legislative and OSD requirements for getting into limited production on EMSP SEM-B.

The reason why that is not ready to be tied into the SQQ-89 right now relates to budget cuts over previous years which deleted the system engineering moneys which would be required to modify the SQQ-89 to accept EMSP earlier. So it really ties back to previous budgetary decisions that now drive the upgrade of the 1989 program.

Mr. HEFNER. What does that have to do with the unit price if we go ahead with the SEM-B and put that on the SQQ-89 system? How does that affect the unit price?

Admiral MEINIG. The unit price of the SEM-B units that would be bought in 1990, 1991 would not change with the SQQ-89 in there or not because of the time phasing of those units into the system.

The system engineering and time requirements to ready the basic 89 system—if those research and development engineering moneys were available—would lead to a higher rate production in the out years, but would not impact the cost in the early years.

One of our considerations in dealing with this problem is to ensure that we have a sound, continuous production line that will support the Navy's ASW signal processor requirements and we believe that the planning that the Navy is maturing in the EMPS SEM-B and the follow-on EMSP SEM-E will support that continuous production line.

I guess I could add one other comment. The average cost of the SEM-B unit over a period of ten years or so would come down as the quantity goes up, but the unit costs in the early years would not show a measurable difference.

Mr. HEFNER. The Navy is projecting orders for this version will drop from over 500 in 1985 to over 100 today. That certainly has an effect on unit costs.

Admiral MEINIG. What really determines the unit cost in the year of order is the quantity that would be procured. Right now the SQQ-89 program would not be driving those particular requirements. The funding that would have provided the opportunity to upgrade the SQQ-89 program to take EMSP SEM-B was cut in congressional action two years ago and the Navy is now unable, because those moneys were not available, to do the enginering to introduce EMSP to replace the UYS-1 in the basic SQQ-89 program.

Mr. HEFNER. If the funds were provided to begin production of the B version for the SQQ-89 basic surface ship combat system as soon as possible, what level of funding would be required for that purpose?

Admiral MEINIG. I believe it would be best if we would provide that for the record, sir.

[The information follows:]

According to our recent estimates from the prime contractor, the level of funding would be from $222 million to $288 million to substitute EMSP for the UYS-1. We would require $10 million to $40 million in SCN and $212 million to $248 million in OPN to pay the recurring and non-recurring costs necessary to incorporate EMSP.

Mr. HEFNER. The Navy and this Committee have given you $500 million and the contractor has spent $50 million to $100 million of their money to develop a standard signal processor to deal with your number one priority.

To me, it doesn't make any sense not to use it. If and when the SEM-E version is ready, it can still be used in the P-3 platforms, but here, why do we continue to delay—this is a substantial amount of money that we have spent, and weren't we supposed to have a decision in March?

Admiral LOFTUS. Mr. Hefner, if I may, if we incorporate the SEM-B now, there are some integration costs of between $65 million and $200 million that will be required.

There were some slips in the 1989 system itself. There is no real performance improvement with SEM-H in the basic, the SQQ-89 basic and GE does not expect to have software integration——

Mr. HEFNER. In the 1989 Defense Appropriations Conference Report, the conferees noted that the contractor was ready to begin production, but the Navy had not released any funds. The conferees asked the Navy to develop a cost-effective acquisition strategy and report back to the Committee by March 1, 1989. The conferees also approved a Navy proposal to buy system components to prevent a production break which would cost up to $50 million. Reprogramming for this bandaid fix has never been received. Is the Navy funding this without a reprogramming and why hasn't the Committee received the requested report?

The gentleman mentioned it would be in a few months. It says March 1 here and here it is April 11, my birthday. Could you explain that? What you are saying now is that it is basically our fault?

Admiral LOFTUS. No, sir.

Admiral MEINIG. No, sir; that is not intended. If I conveyed that, my apology.

The Navy has spent a great deal of time in the last months and particularly in the last few weeks in getting all of the interrelated programs that are involved with EMSP now and in the next five or ten years aligned so that the funding is sound, the engineering time frames for introduction of EMSP are rational within those programs such as the BSY-2, such as the SQQ-89, such as the P-3 upgrade 4, all programs that related to EMSP, and that correlation in turn to an effective start of limited production for EMSP this year down at Greensboro.

I can assure you that the Navy is agonizing even today because four of my people are over in the Pentagon as we speak here with the Navy Comptroller people putting the final touches on that above threshold reprogramming action in place to make sure that it is completed staff work when you receive it very shortly.

Mr. HEFNER. When will the EMSP production line begin to shut down without this reprogramming?

Admiral MEINIG. We view the reprogramming moneys must be available to us to apply in the June time frame or else we will introduce what is essentially a day-for-day slip in the program.

Once you introduce a production break, actually it is more than day-for-day because there is a start-up that is painful as a function of the time that you are shut down.

Mr. HEFNER. When do you think we can expect that reprogramming?

Admiral MEINIG. I would like to say within two weeks you would have it, sir. The Navy is doing its utmost to provide that.

Mr. HEFNER. Could you let us know when that is going to be?

Admiral MEINIG. Yes, sir. That has my personal attention and we will provide an early answer for the target date. Our expectation is within two weeks.

Mr. HEFNER. We have now the SEM-B that is introduced—that does work, does the job we want it to do; is that right?

Admiral MEINIG. The current production model is the old model. There are some EMSP SEM-Bs that have been built up in what we call DTEs, development test equipments.

They are essentially preproduction units built on the early factory line to do two things—really three things: provide us the opportunity as EMSP developers with AT&T to do the qualification and performance testing in the factory to make sure that EMSP SEM-B operates to our expectations and AT&T's.

It also provides units such as the ones we have provided to General Electric for their early familiarity in engineering and to Hughes for their early engineering in their programs to permit the system engineering of the user ASW systems to proceed while we go through the process of getting formal approval for production.

So we have made a number of the development test equipments on that early production line, and in so doing, we have provided a partial proofing of the production line tooling and test equipment, which is operating in the factory down at Greensboro and Fillford today.

Mr. HEFNER. You're committed for all your surface ships for EMSP?

Admiral MEINIG. Yes, sir.

Mr. HEFNER. I have other questions for the record. I would like to have that information as soon as you can. We would like you to expedite it as much as you can.

Admiral MEINIG. I would expect in two weeks or less.

Mr. HEFNER. Thank you, Mr. Chairman.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

Question. According to fiscal year 1990 Navy budget documents, the Navy will submit a $22 million reprogramming request to maintain critical vendors and keep the production line open for the Enhanced Modular Signal Processor (EMSP). However, after three months we have not yet seen that reprogramming. Why not?

Answer. Under current plans, Navy intends to execute the $22 million above threshold reprogramming (ATR). However, recent significant changes to the program have necessitated a Flag-level review and a program review presentation to the Under Secretary. Based on results of these briefings, actions required to execute the ATR will be determined.

Question. When will the EMSP production line begin to shut down from this problem?

Answer. Discussions with AT&T, the prime contractor, are currently underway to determine when the production line would be shut down. Efforts are being taken to ensure that this possibility is minimized.

Question. Does it make sense to let the production line decline now, only to start it up again in a few years?

Answer. Navy does not intend to allow the production line to shut down and start it up again in a few years.

Question. The Navy claims to be committed to buying EMSP. The only model of EMSP near production is the "B" version. The Navy's projected orders for this version have dropped from over 500 in 1985 to under 100 today. Does the Navy believe this shows a commitment to EMSP?

Answer. Navy is committed to EMSP. However, the realities of funding, schedule, and technical changes to EMSP user programs will necessarily have a corresponding impact to the procurement of EMSP.

Question. Describe the increases in the projected unit cost of the "B" version as the quantities dropped between 1985 and today.

Answer. The average unit cost of a SEM-B unit has increased from $1.7 million in 1985 to $3.35 million in 1989. These figures are based on average unit cost to the AN/BSY-2 program from fiscal year 1989—fiscal year 1992 and reflect the reduction in the total procurement.

Question. Virtually all remaining "B" units will be procured by the SSN-21 program. What will their procurement unit cost be if they remain in the "B" program, and is that affordable given their attempts to keep costs down?

Answer. Under current plans, the SURTASS program also intends to procure SEM-B units, and the Fixed Distributed System (FDS) is considering the possibility of procuring SEM-B units. In that unit costs are dependent on the number of orders, cost options to the SSN-21 program are being reviewed. Navy intends to select an option that will be executable by the SSN-21 program.

Question. The Navy plans to buy 337 units of the "E" version of EMSP. 75 percent of these units won't be procured until fiscal year 1994 or later. Why wait for the "E" version when a production line is ready today for all users except the aviation community?

Answer. The realities of funding, schedule, and technical changes to EMSP user programs will necessarily have a corresponding impact to the procurement of the SEM-B variant of EMSP. Navy is in the process of reviewing SEM-B and SEM-E procurement options that will constitute the most logical approach for the Navy from a fiscal, schedule, and technical point of view.

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. DICKS. Mr. Miller?

MK-50 TORPEDO

Mr. MILLER. Thank you, Mr. Chairman.

The MK-50 torpedo is the weapon to be used with the Sea Lance, vertical launch weapon system which is currently under development. How many MK-50s does the Navy intend to buy for Sea Lance?

Admiral GEE. I expect that we will be procuring on the order of about ———. The Navy's final inventory objective models for Sea Lance are being run at this time. We would anticipate between submarine requirements, surface ship vertical requirements for Sea

Lance, the normal pipeline factors and fleet training that the total requirement will be in the order of about ———.

Mr. MILLER. Have there been any difficulties in integrating the MK-50 and Sea Lance?

Admiral GEE. Not to date, but the full integrated flight tests have not begun as yet and we will be conducting those tests in the summer of 1991. The first flight tests of Sea Lance took place in January of 1989. The second two flights will be this fall.

Flights with the full payload including the MK-50 payload, Congressman Miller, will occur in the fall of 1991 and on into 1992.

TYPES OF MISSILES

Mr. MILLER. Looking at the big picture, instead of just individual missiles as such, we have so many different types, different styles, different speeds for different purposes and when we do down the list looking at just a few, the Trident, D-5, the Rolling Airframes, the HARM, the Phoenix, the Harpoon, the Tomahawk.

We have so many different types. Is it possible that we could use fewer types that are less mission specific?

My question is prompted by the fact that each ship undoubtedly would not have all of those missiles and how do you know that a certain missile is needed on a certain ship? That may or may not be in a place where it is needed when it is needed.

There are a lot of variables here and we are picking out a lot of different types of missiles and spending a lot of R&D money. Can you give us an overview or the big picture why all of this is necessary?

Admiral GEE. Yes, sir.

Particularly within the Navy, we deal in a multi-mission environment which goes from battle over land to battle in the air, beneath the seas and on the surface of the seas.

Within that multi-mission environment that we have, we face every type, generic type of threat, that is faced generally by the other services.

If I included the Marine Corps in here—we make every effort we can to do things to meet the threat and it is the threat that drives the weapons development against the national strategy that we have and how nationally we employ our maritime forces.

We look at two things. Number one, do we already have a system in existence which can be modified or evolved to accommodate the new threat? A good example of that is the family of Standard missiles. Since 1968, the Standard missile family has been evolving. We have been able to accommodate a cruise missile threat and an air threat against our forces which has just blown up the battle space much, much bigger.

Down from the surface of the ocean all the way up to the zenith with radar cross sections that are very, very small now; ten years ago we worried about a 600 mile-per-hour cruise missile, now we have cruise missiles coming in at 1,500, 1,600, 1,700 knots. We have been able to evolve the missile family to accommodate that.

Similarly, we have followed along and evolved in Trident, one of three legs of the strategic triad, and very efficiently accommodated the national strategy and the fleet in the development of Trident II

D5 for the deterrence we believe we need. In other systems, particularly strike weapon systems, we look to try to neck down whenever we can.

If we right now have three or four or five different systems, we look to the future to try and neck those systems down. An example of that is the Advanced Interdiction Weapons System which is in engineering development right now, that will basically replace some number of our current air-to-ground weapons.

We would like to have a fewer number of types of weapons because that reduces our training requirement and our logistic support requirement. It provides us commonality. It is the threat that drives our weapon characteristics. That is the best I can tell you.

We are moving forward the best we can to both neck down the number of weapons we have; and number two, to evolve the additional capability where opportunity allows.

Mr. MILLER. How do you go about deciding what weapons would be on what ships? It is hard for me to believe that every ship would have every one of these weapons on which it apparently could be needed at some time.

Admiral GEE. That is correct, sir. We allocate weapons and the combat systems that control those weapons on a ship, based upon the mission of the ship.

That is, you will find that we have some ships which are primarily ASW platforms, but they must have a good antiship missile defense capability. We have other ships which are primarily anti-air warfare platforms. They need some reasonable level of anti-submarine warfare capability.

We are moving now with the CG-47 class of ship and the DDG-51 to build truly fully multi-mission platforms. The introduction of the vertical launching system allows us to put a variety of different types of missiles that perform different functions into a single launcher configuration and control them.

We have come a long way in providing the fire power in all mission areas that we need in these ships. A vertical launcher can carry a Tomahawk missile for antiair; a Tomahawk missile for anti-ship strike, and a standard missile for surface-to-air. It will also carry Sea Lance for undersea warfare.

It depends upon the ship's mission and there are some fundamentals we provide to every ship. Every ship has some anti-ship missile defense capability and some are more robust than others. But all ships have some anti-missile defense. That must occur.

Mr. MILLER. Are we saying, too, that with an aircraft carrier battlegroup of ships that all of those missiles will be represented in that battlegroup?

Admiral GEE. Absolutely; yes, sir. And we also distribute our missiles. When we compute our missile requirements, we don't compute them just against the number of threats. We have to insure distribution because we don't know whether ship X will encounter ship Y or whether ship X will encounter threat Z.

We distribute our weapons capability throughout the battle force so that we do not have any gap, within the total threat battle space with which we have to deal.

PENGUIN MISSILE

Mr. **Miller**. Last year the Congress deferred procurement funding for the Penguin missile based on schedule problems and a reorganization of a Norwegian contractor. Penguin is a short-range, air-to-surface anti-ship missile system for the LAMPS MK–III helicopter. The 1990 budget includes $39.6 million for 64 missiles.

How is the health of the program this year? Are you back on track?

Admiral **Gee**. Yes, sir We believe we are back on track. I would like to ask Captain Don Finch the Penguin Program Manager, to join me up here at the table.

The current program schedule reflects testing from July 1988 to March 1990 with a Milestone III production decision during the third quarter fiscal year 1990. We believe that we have no technical problems that are facing us. We believe that we are sorting out all of the funding issues with Norway and that we are prepared to go into production. Let me turn to Captain Finch and let him amplify.

Captain **Finch**. Mr. Congressman, we have had a couple of technical difficulties regarding the rocket motor that we have now solved. At the present time, it is the assessment of the Navy's technical team that we have no technical problems remaining that would delay us further.

We have had other complicating factors such as the exchange rate problem between the Norwegian Krone and the United States dollar. In fact, the United States dollar has been devaluated approximately 32 percent against the Norwegian Krone since the program was budgeted.

That has caused some funding shortfalls and has actually resulted in a work-stoppage while further funding was received on the program.

At this time, the program is adequately funded and is technically sound. We do not foresee any further delays and plan to be in production in fiscal year 1990.

Mr. **Miller**. The one-year program slip will cost approximately, as we understand it, $30 million. That would be both for development and production. Is that correct?

Captain **Finch**. That is approximately correct; yes.

Mr. **Miller**. Will the United States Government stand to bear the entire cost of the slippage?

Captain **Finch**. At this time, we are.

However, we are negotiating with the Norwegians for consideration because, in fact, there have been hardware delivery delays caused on their part.

The Norwegian Government has been reluctant to grant us any consideration, but in the production options that we are now reviewing, we are attempting to negotiate a concession on their part as far as hardware if we cannot recover monetarily.

Mr. **Miller**. How much of the increase is due to exchange rate fluctuations? Do you have that information?

Captain **Finch**. The fluctuation caused by the 32 percent decrease has, I would have to get that for you, Mr. Congressman.

Mr. MILLER. If you could furnish that for the record, I would appreciate it.

Captain FINCH. Congressman Miller, it is approximately 50 percent of the overall increase.

[The information follows:]

The increased cost to the Penguin Research, Development, Test and Evaluation budget that is attributable to exchange rate fluctuation is $11.1 million. This represents budgeted dollars at 8.9 Krone to the dollar versus actual billings that were paid at a rate as low as 6.1 Krone to the dollar. The increased cost attributable to schedule slip is estimated at $5.8 million.

The estimated increased cost to the Penguin Weapons Procurement, Navy for fiscal years 1990–1992 caused by the exchange rate is $5 million. The one year shift in the Weapons Procurement, Navy budget created a $3 million inflation adjustment.

Mr. MILLER. What further testing has to be accomplished before a low rate initial production decision will be made?

Captain FINCH. Testing is under way in DOT–IIA that involves both ground checks and also captive carry flights on the LAMPS helicopter.

Within DT–IIB/OT–IIA Techeval (4 shots) we are planning to have our first shot this fall. After completion of Techeval a decision on authority of low rate initial production will be made. The Techeval will be followed by a 4-shot operational evaluation. I expect to complete that in the spring of 1990 and be ready for a full rate production Decision during the summer.

Admiral GEE. I would note, Mr. Miller, that the Air Force is also bringing Penguin in. They just completed some of their testing over there in the United States. They were successful six or seven firings, so we are very optimistic, although the Air Force testing has been very successful.

Mr. MILLER. Where do you currently stand regarding insensitive munitions requirements? Is there a waiver possibility?

Captain FINCH. At the current time, we are requiring the Norwegians to meet all of the insensitive munition requirements for the Penguin missile. To date, our testing has shown that it is meeting all of the requirements.

However, let me add that we still have testing to do on the rocket motor casing that involves both slow and fast firing. At the conclusion of that testing, if they have not met the requirements, we will have to check the data to see how closely they have come before we consider a waiver.

Mr. MILLER. The current Penguin procurement objective is 193 missiles during the next three years. Does the Navy have any thoughts about increasing the planned buy or putting the Penguin on other platforms?

Admiral GEE. Right now the current buy supports putting Penguin into 33 of our FFG's. Pending the results of OPEVAL, we will be taking a look in the 1992 five-year defense plan, understanding whether or not we should increase the distribution to Penguin.

So I would not foreclose that option. On the other hand, Mr. Miller, I think that we have to see the results of OPEVAL and getting on to getting our 33 ships outfitted. We certainly would have loved to have had the weapon on our LAMPS MK–III helicopters in the Persian Gulf.

MOLDED CASE CIRCUIT BREAKERS

Mr. Miller. It made me inquisitive when I saw some information concerning the molded case circuit breaker. I am not sure how they would be used.

I think it would be good information for the Committee. In the conference report of fiscal year 1989 Defense Appropriation Act, conferees agreed that the Navy should review the requirements for molded case circuit breakers and submit a plan for addressing any requirements with the fiscal year 1990 budget request.

Just from what we see, I am not sure that I understand what you are talking about at all.

I would like to have someone explain—most of the circuit breakers to day, whether they are small, domestic-type or larger molded case. What new is being done in research and development?

Admiral Loftus. I think we better take that one for the record and give that one to you in detail. I don't think we are prepared to do that today.

[The information follows:]

The use of solid state components as envisioned in the new molded case circuit breakers improves continuity of electrical service in high shock and vibration environments. Solid state sensing and control trip units will replace existing thermal-magnetic trip units which are more prone to shock. The circuit breakers to be modified would be in the range of 250 to 1600 amperes.

We have not yet identified any resources for this program but are investigating the appropriate account from which to fund this proposed effort.

TRIDENT II D–5 MISSILE

Mr. Dicks. After a successful test program of launches from the pad, D–5 experienced a failure last month in its first submarine launch. Early indications are that there was a mechanical failure with the nozzle. Admiral, please give us your analysis of what happened and what you plant to do to correct it.

Admiral Gee. Yes, sir. Let me introduce Ken Malley.

Admiral Malley. I figured this year I wouldn't get away from you. I brought a training aid with me. We spent a lot of money on this plactic cup training aid for this hearing today.

Let me go back through the launch itself. The launch phase of the submarine was quite normal. All the pressures and everything we saw as the missile exited the tube were within the tolerances we anticipated and tested beforehand from a Hunter's Point test where we catch the missile as it comes out in the A frame.

As went to the ignition phase, the failure started to occur almost immediately. We now have the scenario down to two possible failure modes. I would like to describe both of them for you because the fix is the same. It is coming to look more and more like the kind of fix that I would like to have, an easy mechanical fix.

As you get ready to ignite the motor, you are doing a couple of things.

You are trying to get the missile ready to go in to stabilized flight and the other thing is to tip the missile over slightly to start it to go away from the submarine and towards the target.

Now, when the missile comes through the water, you leave a hole in the water. The water collapses and you get a water jet. That water jet, in fact, chases and catches the missile and starts to push it up before you get to ignition. We have seen that on all previous systems. C-3 and C-4 have not had any problems with it.

On this system, for some reason, and this is the part where it starts to get fuzzy, the water jet was there about the time we are getting the nozzle command over. We go to ignition. We commanded the nozzle over to start the move. The nozzle was commanded over and then we told the nozzle to come back and the nozzle did not come back. It kept on going.

That caused the pretty spectacular photography that you saw. It went through about 720 degrees and contrary to what the newspaper reports said the missile did not explode. You go through an automatic termination system to render it non-propulsive. You blow the front and back ends off the motor stages so it will not have any propulsive force. So that was the spectacular explosion that was reported. It did what it supposed to do.

One of two things happened. When we kicked the missile over, you broke the bond between the nozzle and the compliance ring, a big heavy piece of steel; everything else is just carbon material. You have two TVC activators that allow you to move the nozzle any direction you want. We kicked that nozzle over and immediately brought it back but the nozzle did not respond. There is one theory.

We have duplicated this on the computer now. It acts like a bell and starts to ring. It goes into resonance. We think we hit it and it went so hard that the compliance ring actually broke loose and so the nozzle went over and we were moving the compliance ring, but the nozzle was no longer paying attention. So if that is the problem we have to beef up the compliance ring.

The other theory is when we ignited, there was so much water still in the nozzle that we had the tremendous pressure of the missile trying to ignite and the water still being there.

Those loads were higher than anything we anticipated and that would have caused the failure. The correction for that, again, is to improve the compliance ring. What we have now looked at is a hardware fix wherein we do a couple of things.

The compliance ring is held in with 30 pins; first, we'll probably increase the number of pins that hold the compliance ring to the nozzle. The other is we will take another compliance ring, slightly larger, in two pieces, and bolt it to the bottom part of the existing nozzle and pin that in as well. That will change the resonant frequency of the nozzle and give us more strength to survive. So that is what we think the problem is and we believe the corrective action to fix it.

It looks like our next test which was planned for April 18 will be delayed. I would anticipate, and we are going through this right now with our contractors, we should know probably within a week what the plans are, but I would anticipate we would probably not be ready to launch until mid-June. Since the submarine has other things to do, we will change the schedule between now and the end of the year and do other things with this submarine that have to be done anyway. We will look at the ships schedule which might delay the next flight to early July.

So that is the kind of testing and things we are looking at.

Once we modify the nozzle, we need to run ground tests to make sure that it will work. If this fix works, we can do about two nozzles, a nozzle every two days. We have existing nozzles and the new ones coming on, so while it is an annoyance, it is not a severe problem to the entire program.

Mr. DICKS. The Committee understands that the solid rocket motor contractor experienced an explosion last month at the facility near Salt Lake City, Utah.

Tell us what happened, the estimated time the facility may be shut down, as well as the short-and long-term solutions to that problem.

Admiral MALLEY. It wasn't our program, so I can only tell you a portion of it.

Approximately two weeks ago, Hercules was manufacturing their first live mix in a large mixer for the Delta program. This was about 12:05 at night. After about 12½ minutes into the final mix some heat generated, the mixture caught fire and the pressure vessel gave way which resulted in a catastrophic loss of the mixer; the external side of the building came out and the roof caved in. There were no casualties because this is all done remotely.

I have been informed that the contractor has gotten into the mixer area and they believe that the problem was mechanical failure of the mixer blades themselves, which generated enough heat to cause it to ignite. We will probably continue the investigation for another four weeks or so. As a result of this investigation, all mixing operations have ceased at the new Bacchus West facility. This impacts the Titan and Trident II missile programs.

The possible corrective actions are to kick Delta or Titan off the program and go build a mixer somewhere else or to take us and put us back at the old smaller mixer, Bacchus East. We have flown some of our early motors out of there so it can be done, although I prefer to stay with the larger mixer.

Hercules has presented it to Lockheed and they will talk to my people next week. It may end up being a discussion between myself and the people at the Department of Defense and between ourselves, Delta and Titan. We will try to do what is best for DOD in general.

I am concerned that if we don't resolve this in a hurry that we will end up with a potential break in production in second-stage rocket motors. I will try to avoid that.

Mr. DICKS. Are the recent press reports that the Defense Acquisition Board made its 1987 decision to move the Trident missile into production unware of $11 billion in expected total program costs accurate?

Admiral MALLEY. You would like my comments on that, sir? First, I would like to say that the report is absolutely misleading. The headlines are incorrect. If you go read the DOD IG report, you get the straight scoop.

We went through that process and I forget now who headed it up, I don't remember whether it was Dr. DeLaver or Dr. Godwin. The Defense Acquisition Board process calls for the conduct of an independent cost assessment of the program. The independent cost people looked at our program and made a couple of cost decisions in the process of deciding whether or not we should go into production on Trident II D5. They had decided that as R&D had already been 85 percent expended, there wasn't much sense in doing an independent cost estimate of something that was basically complete.

So they didn't look at RDT&E. They decided in view of the fact we were working on the ninth Trident submarine, that there was no use in reviewing the cost so that should not be an issue. They also did not look at the cost for the weapons system that is going into the submarine itself or some of the military construction going on at Kings Bay. They concentrated their efforts on the WPN portion.

When we went forth to the DAB or DSARC, whatever we called it in those days, we went forth with that. I, as the program manager, presented the total cost. It was pointed out to the people making the decisions that those particular elements were not given an independent cost assessment.

So what the DOD IG is complaining about, they are saying that the cost estimators did not do an independent cost evaluation on that, not that it wasn't shown to those people. They were made fully cognizant of the total cost of the program. So that is why I say it was misleading. The real issue is should they have looked at all the costs? That was presented to the decisionmakers and they agreed with what the indpendent cost people had done.

Mr. Dicks. For the record, give us the total program costs for the Trident II and the D--5 missile at the time of the DAB review and currently.

[The information follows:]

Based on the quantities at the time of the DAB, the current cost estimates for development, acquisition and operational support are $44.8 billion for the TRIDENT II (D–5) submarines and $97.6 billion for the TRIDENT II (D–5) missiles and related strategic weapons system (SWS) equipment. The cost estimates at the time of DAB review were $46.1 billion for the submarines and $99.5 billion for the missiles and related SWS equipments. Subsequent to the DAB, two additional submarines and the associated missiles have been added to the program. The current cost estimates for the program including the additional submarines and missiles are $47.1 billion for the submarines and $99.3 billion for the missiles and related SWS equipments.

TRIDENT BACKFIT ACTIVITIES

Mr. Dicks. I notice here the funds requested for Trident refit activities in 1990 and 1991. How much, if any, is related to conversion of Tridents backfitted in Washington to D–5 capabilities?

Admiral Malley. I would have to answer that for the record. It would take be about five minutes to dig it out of my bag.

[The information follows:]

Of the $38.1 million budgeted in the Strategic Missile System Equipment line by Strategic System Programs (SSP) in fiscal year 1990, $6.8 million is earmarked for procurement of hardware required to backfit 726–Class TRIDENT I (C–4) submarines—specifically the OHIO—to a TRIDENT II (D–5) configuration at the Puget Sound Naval Shipyard in Washington. (The balance of funding needed to backfit of OHIO to a D–5 capability—$181.2 million—was included in SSP's fiscal year 1989 request of $346.9 million in the TRIDENT SSBN Ordnance Support Equipment line.)

While the fiscal year 1991 budget request of $160.5 million in the Strategic Missile System Equipment line includes no funding for D–5 backfit hardware procurement, it does provide for acquisition of $118.7 million of training equipment needed to establish a TRIDENT II capability at the TRIDENT Training Facility, Bangor, Washington.

Mr. DICKS. Can you tell us where that program is?

Admiral MALLEY. The backfit conversions have changed a bit since the last time in that we have reevaluated when that submarine would have to go in for overhaul. It is about 12 years. So the backfit is slipping with that.

The first submarine, which is the Ohio, is scheduled to come in, I believe, December of 1992, fiscal year 1993. In December of 1992, she will start the backfit and should be completed by about January of 1995, and then the others will follow sequentially as their time comes up for overhauls.

Mr. DICKS. Are we going to need to be providing some long-lead items in order to accomplish that backfit?

Admiral LOFTUS. Mr. Dicks, I think the materials that were purchased are sufficient to handle that backfit. It is the items that then would have been purchased in 1991, but the backfit is sliding two years.

If you try to accelerate that, what you will end up with is another downtime for the backfit itself and then again in 1993 for the overhaul. Also, any kind of acceleration now is going to require us to accelerate military construction.

Mr. DICKS. Is MILCON the driving question?

Admiral LOFTUS. The driving reason to maximize the use of the cores is the backfit in 1993.

Mr. DICKS. We understand because the—you are going to delay for a couple of years the time in which you are going to do the overhaul and the backfit. But I mean it is just a question of, is there going to be anything necessary other than military construction——

Admiral LOFTUS. Yes.

Mr. DICKS [continuing]. Be funded in order to do the backfit?

Admiral LOFTUS. We would also have to accelerate the procurement of the Trident missiles.

Mr. DICKS. Well, it has been delayed two years.

Admiral MALLEY. I am not aware of any long leads for that.

SEA LANCE ACQUISITION STRATEGY

Mr. DICKS. So you already have it funded in the 1989 budget.

I have one other question. Your statement notes that funds are requested for implementing a second source strategy for Sea Lance. Could you explain how this strategy will be implemented and over what time frame?

Admiral GEE. Yes, sir.

Mr. DICKS. I might say before you start that I very strongly supported your decision on Sea Lance. Having commonality between the submarines and the surface ships in my judgment makes very good sense and I think Sea Lance gives you much greater capability than the existing systems. So I know these sometimes get controversial. I think that was a very good decision.

Admiral GEE. I would like to provide the specific strategy to you for the record, if I could, and simply summarize it by saying that we hope to be under low-rate initial production with Boeing in fiscal year 1992.

We believe that the demand for this system is ample to go ahead and complete the system and that that competition should be put in place. I do not have the exact details so let me provide that for the record, if I could, Mr. Dicks.

Mr. DICKS. Okay.

[The information follows:]

The request for Proposals (RFP) for the second production source for SEA LANCE was issued on 27 February 1989. The proposals, including hardware as well as plans and pricing, are due on 15 December 1989. Selection is expected in mid-1990. The selected team will complete familiarization with the details of SEA LANCE in late 1990, produce and qualify equipment in fiscal years 1991 and 1992, and produce a portion of the limited production in fiscal year 1993. The second source team will compete with the Boeing team for production quantities starting with the fiscal year 1994 purchase, the first year of full rate production.

MK-50 ADVANCED LIGHTWEIGHT TORPEDO

Mr. DICKS. The MK-50 Advanced Lightweight Torpedo has been subject to investigators' review. The GAO, in a draft report, has made the following observations. Please comment on each and indicate what the Navy intends to do in response to the GAO findings.

One, the Navy's operational testing plan has limitations and will not fully evaluate the MK-50's effectiveness.

Admiral GEE. Those are the same type of test limitations that we discussed for the MK-48. Now, we have completed the live fire testing of the MK-50 warhead and we are making a final report to DOD on that for which they will come forward, I believe, to the Congress and certify live fire testing. We still have to test the torpedo and we intend to do so against deep, fast targets and the deep, fast target prototype will be available this summer.

These were comments following OT-IIA, which was successful on areas that they want us to concentrate on, Mr. Dicks, because we are still testing. We have TECHEVAL and OPEVAL to go. We will test it against multiple countermeasures and test the MK-50 against anechoic-coated submarines. We will test it down to its full test depth of 4,000 feet. We have completed—we believe to our satisfaction—the warhead live fire testing.

So I think it was more of a GAO and DOD observation of the things we must do as we structure and finalize the test and evaluation master plan. We are carrying out that direction.

Mr. DICKS. Well, you know you have two of these systems, the MK-48, ADCAP, and this one and in both of them it appears the testing has been inadequate. Why can't we do the master plans earlier in the game?

Admiral GEE. Yes, sir; we do in the case of the MK-50. We just completed OT-IIA and the recommendation from the COMOPTEVFOR and DOT&E was that we were potentially operationally suitable, which is the highest recommendation that you can get at that phase of testing and that was Defense's decision. I don't think the MK-50 program is still in full-scale engineering development at this time.

Mr. DICKS. All right.

Admiral GEE. We plan to test to all the directed criteria.

PHOENIX MISSILE

Mr. Dicks. In fiscal year 1989, the Congress appropriated $397 million to procure 450 Phoenix missiles. The contracts awarded this January were for only 403 missiles. Why did you miss the target by so much?

Admiral Gee. In 1989, yes, sir. In 1989, we proceeded with 450 missiles for $397.7 million, which was enacted. And the question, sir, was?

Mr. Dicks. We understand the contract awarded this January was for only 403 missiles. So instead of getting 450, you only got 403 for the money; at least that is how I understand this situation.

Admiral Gee. Our projections were that the two bidders on the program, Hughes and Raytheon, would come in lower and they did. However, the Navy decided to buy back deferred prior year support requirements. So we contracted for the best competitive bid that we could get on the program considering total program requirements.

Mr. Dicks. Since the budget was submitted before contract award, is it correct to assume that the 1990 budget request of $326.5 million will buy far fewer than the estimated 420 missiles?

Admiral Gee. I believe that estimate is based on our best pricing and expectation at this time, Mr. Dicks. That is the Navy's best estimate for fiscal year 1990, $376.5 million, which includes some advanced procurement money for 420 missiles.

Mr. Dicks. All right. Mr. Chairman, I have no further questions.

Mr. Murtha. Mr. Livingston has questions and we have some questions for the record, gentlemen.

The Committee will adjourn until 1:30 p.m. this afternoon.

[Clerk's note.—Questions submitted by Mr. Livingston and the answers thereto follow:]

AN/SQQ-89 ADVANCED VIDEO PROCESSOR

Question. The fiscal year 1989 Appropriations Conference Report provided an additional $15 million to initiate procurement of the Advanced Video Processor (AVP) as part of the SQQ-89 antisubmarine warfare system. Does the Navy still plan to exercise the production option and acquire this enhanced display system in December 1989, as originally planned?

If not, why not?

What funding, by fiscal year, would be necessary to allow the Navy to stay on its originally planned schedule of December 1989 to acquire this enhanced display system?

Answer. The Navy intends to procure an Engineering Change Proposal (ECP) for the SQQ-89 to introduce the AVP into that system. Funds in fiscal year 1989 have been committed to procure government-furnished equipment (GFE) for the prime contractor to design that ECP. Various design proposals for the ECP are currently under review. Initial procurement for the ECP continues to be planned for December 1989. The following funding is anticipated and has been budgeted: fiscal year 1989, $3.2 million, fiscal year 1990, $14.7 million, and fiscal year 1991, $13.3 million.

[Clerk's note.—End of questions submitted by Mr. Livingston. Questions submitted for the record and the answers thereto follow:]

MK-50 PROGRAM STATUS

Question. How many design changes or notices of revision have been made in the past year?

Answer. The baseline being developed under the Full Scale Development (FSD) contract first reflected the 200A engineering prototype torpedo and has matured to reflect the 200B Technical Evaluation/Operational Evaluation production prototype torpedo. This configuration established the August 1988 production baseline currently being used by Honeywell and Westinghouse to build low rate initial production (LRIP) torpedoes. Since April 1988, 1263 engineering change orders have been implemented against the 200 (A and B) series torpedo. It is estimated that approximately 15 percent of these changes are design related, 15 percent are production related and the remaining are record-change related. Since establishing the LRIP baseline in August 1988, 131 engineering changes have been implemented against the LRIP torpedoes. This level of change activity is comparable to other systems with complex technology such as incorporated in the MK-50.

Question. How many baseline changes have been made in the design in the last two years?

Answer. The 200A baseline represents the configuration of the engineering prototype torpedo at the beginning of Full Scale Development in 1983. This baseline was changed in the second quarter fiscal year 1988 to the 200A/B configuration. The 200A/B configuration was upgraded in the fourth quarter of fiscal year 1988 to the 200B production prototype torpedo which represents the baseline established for low rate initial production hardware.

MK-50 TORPEDO—DRAFT GAO REPORT

Question. The MK-50 Advanced Lightweight Torpedo has also been the subject of investigators review. The General Accounting Office, in a draft report, has made the following observations. Please comment on each and indicate what the Navy intends to do in response to the GAO findings: the Navy lacks key testing resources, such as sufficient targets, and test ranges.

Answer. Eight operational sea runs against the Fast Deep Prototype Target and additional sea runs against other artificial targets, comprising approximately twenty percent of the total sea run program, will be used as a supplemental measurement of MK-50 performance. Commander, Operational Test and Evaluation Forces has evaluated tests incorporating the Fast Deep Prototype Target and other artificial targets as sufficient to ———. However, for the long term the Navy agrees that there is a need for a single threat representative target. One such target, the MK-30 MOD 3, is under development but will not be available until 1992, after MK-50 testing is complete. Regarding test ranges, current range locations will permit full MK-50 testing, including ———. Tracking accuracy available at existing ranges is sufficient for MK-50 test and evaluation. The combination of external position data from test ranges plus internal data from the MK-50 exercise sub-section is ample for complete assessment of MK-50 performance.

For the long term the Navy has initiated two test range programs that will greatly enhance test realism. One program will develop a portable tracking system which will allow weapon system testing in different ocean environments and locations. A second program will develop a deep water research and development range off Eleuthra Island in the Bahamas. This new range will allow use of all available sonar propagation paths and will be large enough to conduct realistic operational testing of new combat systems. Both programs are planned to begin in fiscal year 1990 but will not complete in time for MK-50 testing.

Question. Please comment on the GAO finding: The MK-50 lethality test plan lacks clarity and specificity.

Answer. MK-50 warhead effectiveness is adequately defined in the MK-50 Decision Coordination Paper (DCP) and Test Evaluation and Master Plan (TEMP) as the ability to ———. An independent Warhead Assessment Group, chaired by the Advanced Technology Division at Los Alamos National Laboratory, concluded that ———.

Question. Please comment on the GAO finding: The test and evaluation master plan (TEMP) lacks adequate live fire strategy.

Answer. It is necessary to keep in mind the time frame in which MK-50 development tests were conducted. The TEMP section dealing with live fire test and evaluation (LFT&E) was submitted for approval prior to issuance of formal live fire test guidance and the DoD recognizes that the TEMP does not meet all LFT&E criteria for format and scope. Navy and DoD are working together to ensure that historical live fire testing and documentation of that testing satisfy live fire test legislation requirements. The LFT&E section of the MK-50 TEMP will be updated to comply with guidelines during the next revision prior to Milestone IIIB in January 1991.

Question. Please comment on the GAO finding: The TEMP should be revised to distinguish better between single and multiple countermeasures.

Answer. The MK-50 TEMP will be revised to clearly distinguish differences between ———. It is anticipated that the TEMP update will be accomplished by July 1989.

TRIDENT II (D-5) MISSILE

Question. After a successful test program of launches from the pad, the D-5 missile program experienced a failure last month in its first submarine launch. Early indications are that there was a mechanical failure with the nozzle. Please give your analysis of what happened in the flight test failure and what you plan to do to correct it.

Answer. Analysis of the telemetry data and recovered missile hardware from the PEM-1 missile flight test has determined that redesign and modification of the mechanical linkage transmitting the nozzle commands to the nozzle exit cone as well as modification of the timing and magnitude of allowed nozzle position commands during the initial phase of first stage motor pressure buildup following ignition is in order.

Question. When had the next test shot been scheduled, and when do you think it will occur?

Answer. The next test that was scheduled prior to the PEM–1 failure was 18 April 1989. The incorporation of the corrective action will support the resumption of PEM flight tests no sooner than mid June.

Question. The Committee also understands that the solid rocket motor contractor experienced an explosion last month at the facility near Salt Lake City, Utah.

Please tell us what happened, what you think was the cause, the estimated time the facility may be shutdown, as well as the short- and long-term solutions to the problem.

Answer. It wasn't our program, so we can only tell you a portion of it. On 29 March 1989 Hercules was manufacturing their first live mix in a mixer (mix Building #2) for the Delta program. About 12½ minutes into the final mix, the mixing bowl, which is under vacuum, had generated sufficient heat for the propellant to catch fire. The pressure vessel gave way which resulted in a catastrophic loss of the mixer. One side of building came out (by design) and the roof caved in. There was no loss of life as the operation is done remotely. As a result of the accident all mixing operations have ceased in the new Bacchus West facility. The destruction of Propellant Mix Building #2 has resulted in the cessation of mixing and casting of the TRIDENT II (D–5) second stage motors, as a safety measure, even though mix building #1 has successfully processed about 50 live mixes to date, including 4 mixes for the Delta program. It is currently forecast that propellant casting will resume no earlier than 1 July 1989. The nature of corrective actions are subject to the findings of the incident investigation team. However, when operations resume the contractor will have difficulty scheduling his operations for the three program (TRIDENT, Delta, and Titan). A short-term option is to reopen the Bacchus East facility to support the remaining mixer at Bacchus West. SSP prefers not to use the Bacchus East facility, even though early development motors were successfully produced there, since all of our production (tactical) assets have been produced with Mixer Building #1 at Bacchus West. The long-term solution is for the contractor to replace the damaged facility or complete construction of Mix Building #3 which was already planned or both.

Question. Ultimately, will the contractor (Hercules) have to build a new facility to satisfy his contractual obligations?

Answer. I would think so, but this involves contracts with the Air Force and I am not familiar with their programs.

Question. What other DoD missile programs have been affected by the plant explosion?

Answer. Titan and Delta.

Question. Do you know what the relative priority of the D–5 missile is compared with the other DoD programs concerning operation of the Hercules facility?

Answer. All have "Brickbat" priority. There is no relative ranking among the program using the facility.

Question. What are the total program costs for the TRIDENT II submarines and D–5 missiles? What was the estimate at the time of the DAB review?

Answer. Based on the quantities at the time of the DAB, the current cost estimates for development, acquisition and operational support are $44.8 billion for the TRIDENT II (D-5) submarine and $97.6 billion for the TRIDENT II (D-5) missiles and related strategic weapon system (SWS) equipment. The cost estimates at the time of DAB review were $46.1 billion for the submarines and $99.5 billion for the missiles and related SWS equipments. Subsequent to the DAB, two additional submarines and the associated missiles have been added to the program. The current cost estimates for the program including the additional submarines and missiles are $47.1 billion for the submarines and $99.3 billion for the missiles and related SWS equipments.

ROLLING AIRFRAME MISSILE (RAM)

Question. The Administration's 1990 budget contains $90.3 million for the U.S. share of the RAM program, or 580 missiles. This weapon is to be produced in conjunction with the Federal Republic of Germany and is designed as a ship self protection system to complement the Phalanx. What is the German contribution to the program for 1990 and provided to date?

Answer. The German contribution necessary for 400 missiles is currently projected to be $76.1 million. The estimate for the fiscal year 1990 German requirement of 14 launching systems is $65.4 million. Budget authority in these amounts will be transferred on or about 1 January 1990.

The U.S. received $24.9 million to support joint missile production transition efforts during fiscal year 1988. Joint launching system production transition efforts in fiscal year 1988 in the amount of $17.6 million were shared by the German Government.

$4.1 million has been received thus far in fiscal year 1989. Budget authority in the amount of $89.4 million for 350 missiles and qualification efforts by both sources will be transferred from Germany to the U.S. 1 May 1989. It is expected that budget authority in the amount of $59.6 million for 10 launchers will simultaneously be transferred.

Question. Budget backup material indicates that head to head competition between the U.S. and German producers will begin as soon as they are qualified. When do you estimate this will occur?

Answer. Interim qualification will be achieved mid-1990 thus allowing head to head competition in late fiscal year 1990.

Question. Will there be a minimum buy for each?

Answer. The competition will lead to the split of combined requirements between producers that results in the most favorable result for both Governments. A share of the combined U.S./German quantity of 980 will be awarded to each source. The 3 August 1987 production MOU stipulates that, unless proposed prices are determined to be other than fair and reasonable, no producer will be awarded a quantity less than 360 missiles.

Question. When will the first U.S. built production missile be delivered?

Answer. June 1991.

Question. When will the first German built missile be delivered?

Answer. January 1992.

Question. How many proofing rounds from each producer will be received before approval for full rate production and head to head competition?

Answer. A minimum of two proofing rounds will have been produced and tested on certified final acceptance production test equipment by mid-1990. Approval for full rate production will be based on successful completion of Operational Evaluation currently scheduled for May 1990.

Question. Last year you estimated that the 1988 procurement buy for 240 missiles would be on contract by August 1988 and the 1989 buy for 260 missiles would be on contract in June 1989. When will you be on contract?

Answer. A production contract for the initial 500 missiles is expected to be negotiated by 30 April 1989.

Question. What has caused the delay?

Answer. In order to meet the unit cost restrictions of the fiscal year 1987 National Defense Authorization Act, the original procurement plan for fiscal years 1988–1989 was to award an initial contract in fiscal year 1988 for 240 missiles followed by an option exercise in fiscal year 1989 for 260 missiles and have the entire 500 missiles delivered over a 12 month period. The contractor was unable to propose a procurement plan that would achieve this 12 month delivery schedule. Further, the contractor was also not able to maximize material savings with the 500 missile buy split into two awards. As a result, the Navy combined the fiscal years 1988–1989 quantities into a single fiscal year 1989 buy of 500 missiles. This change necessitated modification of the proposed terms and conditions and a revision to the contractor's proposal. This proposal is currently being negotiated and the Navy expects the resulting contract will be priced at a level to meet the congressional unit cost restrictions.

Question. This suggests the program has slipped up to eight months, is that right.

Answer. Missile deliveries will now take place 4 months later than the schedule presented in the fiscal years 1988–1989 President's Budget, however, the revised dates are synchronized with the revised overhaul schedule for the lead ship. Thus, there is no overall program impact.

Question. The minimum sustaining rate for the U.S. producer, General Dynamics, is 360 annually. Is that correct?

Answer. The nominal minimum sustaining rate established in the Production MOU was a preliminary estimate of the absolute minimum production rate that each producer must maintain to preserve production capacity for the next year. It was recognized that if a Government opted for this low rate, it would pay a substantial premium in increased unit costs. The current estimate for an economic sustaining rate (i.e., the minimum rate at which reasonable economies of scale result) is 45–50 missiles a month.

Question. At 580 missiles, the budget request is well above that level. Why is the relative priority of this program so high that it fares better than most Navy missile programs in terms of production rates?

Answer. As a joint U.S./German cooperative production program, in which both Governments have committed to supporting dual source competition, the combined fiscal year 1990 requirement of 980 missiles (580 U.S., 400 German) is considered the minimum necessary to enable the meaningful dual source production with a competitive split envisioned by the 3 August 1987 Production MOU. The 580 missiles budgeted in fiscal year 1990 cannot be strictly compared to the 360 minimum sustaining rate, but should be analyzed in terms of the combined production capabilities of the two contractors under the MOU. The RAM has faired no better and no worse than other Navy programs, but has competed for scarce Department resources depending on costs, production readiness and technical progress.

Question. What is the status and cost of the facilitization for both contractors?

Answer. Both contractors will house their production lines in existing facilities.

Long-lead efforts toward fabrication of In Process Test Equipment/Special Tooling (IPTE/ST) were initiated for the German producer in November 1988. Costs to facilitize the RAM System consortium are estimated at $35–50 million and will be borne entirely by the German Government.

Fabrication of In Process Test Equipment/Special Tooling (IPTE/ST) was initiated by General Dynamics in mid-1988 and is on schedule to support production. Approximately $25 million in costs are being initially financed by General Dynamics. The contractor will recover these costs from the U.S. over 4 years via amortization collectible as a result of each annual contract.

Identical sets of Final Acceptance Test Equipment (FATE) are being fabricated for both producers by General Dynamics. Contract price is approximately $42 million. An initial suite of FATE will be delivered to each contractor in early 1990.

HARM MISSILE

Question. The Navy is requesting $292.2 million in fiscal year 1990 for 1,162 HARM missiles, including 38 with the Low Cost Seeker (LCS). Program totals including the Air Force and Foreign Military Sales are $371.5 million for 1,668 missiles. The acquisition strategy for the program has changed quite a bit since last year. Bring the Committee up to date on the proposed changes.

Answer. The acquisition strategy has been little modified since the services' HARM Improvement Plan was forwarded to Congress in August 1987. The strategy to compete Ford's LCS against Texas Instrument's Block IV is still operative and both programs are proceeding on schedule. The LCS buy of 100 seekers for fiscal year 1990 includes 50 United States Air Force and 50 United States Navy (12 RDT&E/38WPN). The LCS buy of 400 for fiscal year 1991 includes 200 United States Air Force and 200 United States Navy. The fiscal year 1992 competition will be for a split buy and the Navy now intends to conduct a multiyear, winner take all buyout competition for fiscal year 1993–1994 procurement vice continuing with split buys.

Question. What is the status of the second source development?

Answer. LCS design is complete and a brassboard has been fabricated. All technical risks have been satisfied with one exception, the shutter attenuator, which has not been qualified. Three separate sub-vendors are developing this component. Preliminary test results on this component are good and no problems are anticipated. Software, under development by NAVWEPCEN, China Lake, CA is performing well in brassboard testing. Both hardware and software are on schedule. LCS performance results show significant sensitivity improvements over the current HARM seeker. A related initiative to second source to Ford the All Up Round (AUR) integration, including fabrication of the control section, has been started.

Question. Under the current plan, when will the second source have its first missile firing and when would the Navy go on contract with the second source for the pilot production lot?

Answer. The first firing of LCS is planned for February 1990. The contract option for the pilot production stipulates award not later than 31 January 1990. This plan is in response to Congressional desires that production be started as soon as possible with minimal production line gaps.

Question. How many production missiles do you estimate the second source will have delivered at the time of the head to head competition?

Answer. Head to head competition will not occur until after the Approval for Full Production (AFP) decision, currently planned for the third quarter, fiscal year 1992. Prior to AFP, Ford will have been contracted for 500 LCS guidance sections (100 in fiscal year 1990 and 400 in fiscal year 1991) and will have delivered approximately 50.

Question. Do you believe this limited number will permit a full and fair competitive environment?

Answer. Yes. In view of the Ford commitment to the third year option prices, they will be fully competitive in fiscal year 1992.

Question. What has the been the total cost to develop the second source?

Answer. The Navy and Air Force will spend approximately $230 million of RDT&E funds to develop Ford's LCS through Full Scale Engineering Development (FSED) and testing.

Question. What is the status of the all up round second sourcing development? What will it cost? How is it budgeted?

Answer. An RFP will be issued to Ford Aerospace in late April 1989 to qualify them as a second AUR producer including qualifying them on the control section, the last major HARM component built by Texas Instruments. The cost is currently unknown. There is a funding cap of $20 million in the Justification and Approval document. A portion of this amount may be available through restructuring of the organic depot support costs, however this analysis has not been finalized. Additional funding, if required, would have to come from other programs.

Question. What is the current cost of an all up round and how does it compare with three or four years ago?

Answer. The fiscal year 1989 HARM missile cost approximately $203,000; the fiscal year 1986 HARM missile cost approximately $258,500.

Question. What do you estimate would have to happen to the cost of an all up round in order to recoup the second source cost?

Answer. As the total source costs are not yet known, this cannot be determined. Total non-recurring costs plus the increase in second hardware costs, balanced against decreasing unit costs will determine the break even point. After the RFP response is studied late this year, that point can be determined.

Question. What is the development status of the prime contractor's Block IV upgrade?

Answer. Block IV is currently in Contractor Test and Evaluation (CTE), DT-IIIA. Two firings using translated Block III software have been accomplished, both successful. The third of five CTE firings is planned on 20 April 1989. Qualification testing was completed with outstanding results. Block IV software development is behind schedule because of conflicts with Block III software development, which is also behind schedule. No delays in the overall Block IV development schedule are anticipated.

Question. What circumstances could cause the Navy to change its acquisition strategy of fiscal year 1993–1994 multiyear buy out?

Answer. The acquisition strategy is vulnerable in two circumstances: program slippage by one or both developers and changes in quantity after fiscal year 1991.

a. Program slippage. The LCS development schedule contains concurrent Developmental and Operational testing. The current schedule allows no room for technical difficulties in hardware development or any but minor problems in software development. At this time, there is no indication that LCS will experience difficulty in testing, but the risk for program slip is not negligible. Block IV, by contrast, is being developed and tested in a traditional, sequential manner, and there is room to correct deficiences and retest without major impact to the schedule. At this time, the Approval for Limited Production (ALP) for LCS and the Approval for Full Production (AFP) for Block IV decisions are planned to occur simultaneously in fiscal year 1991. Should LCS slip relative to Block IV, which is the most likely scenario, the Navy would still proceed with procurement of Block IV when it is ready.

b. Outyear quantity changes. Quantities in the President's Budget reflect the minimum changes. Quantities in the President's Budget reflect the minimum that will sustain the two source acquisition strategy. Should quantities in fiscal year 1993 and beyond increase significantly, the Navy may revert to the original strategy of maintaining two sources for annual (split buy) competition if it is more cost effective. The Tomahawk program has confirmed the presence of strong competition even at reduced annual quantities. Outyear quantity increases may occur in view of, 1) the additional foreign sales that may develop with Australia, Spain, Italy and Korea and, 2), any change in the Navy TACIT RAINBOW program which would impact HARM requirements.

Question. At the end of the deliveries funded through 1994, what will be the on hand inventory compared with the program objective?

Answer. The fiscal year 1994 funded deliveries will equal 12,406 versus a combined HARM/Shrike planning objective requirement of ——— and a programming objective of ———. The ——— the programming objective reflects maintaining a minimum sustaining production rate and a hedge against the complementary TACIT RAINBOW anti-radiation decoy requirement.

PHOENIX MISSILE

Question. Fiscal year 1989, the Congress approved $397.0 million to procure 450 missiles. The contracts, awarded this January, were for only 403. Why did you miss the target by so much?

Answer. In order to accommodate approximately $26.1 million referrals in fiscal year 1988 and emergent requirements in fiscal year 1989 only 403 Phoenix missiles were procured instead of the 450 authorized.

Question. What did you learn about Phoenix missile cost and pricing?

Answer. Both manufacturers are experiencing learning curves in the vicinity of 90 percent. The fiscal year 1989 Raytheon contract for 208 missiles was awarded for $140.3 million. The Hughes contract for 195 missiles was awarded for $131.9 million. These contracts were fixed price and included the guidance, control and airframe (GC&A), rocket motor, FSU-10/A fuze, fuze trigger device and engineering costs. In addition, the Raytheon contract included $5.8 million in factory tooling amortization. Inclusion of the target detecting device and other safe and arming components results in an average hardware unit cost of about $734,000. This reflects a 12.4 percent decrease from the fiscal year 1988 prices.

Question. Since the budget was submitted before contract award, is it correct to assume that the 1990 budget request for $326.5 million will buy far fewer than the estimated 420 missiles?

Answer. The budget request will procure the 420 missiles estimated. Based on fiscal year 1989 contract awards, funds requested in fiscal year 1990 are sufficient to procure 420 missiles.

Question. The Navy's acquisition strategy for Phoenix is a winner take all three multiyear competition buyout.

How many production missiles will the second source have delivered by the time of the multiyear competition?

What are the savings estimated to result from the multiyear competition?

Answer. Raytheon will deliver their first "all Raytheon" missile concurrent with submission of a program buyout proposal and the Navy will realize savings of approximately $65.1 million as a result of the multiyear buyout as addressed in the budget exhibits.

Question. What are the minimum sustaining production rates for each contractor?

Answer. The minimum sustaining rates are approximately 180 missiles at Hughes and 180 missiles at Raytheon.

Question. There have been ongoing problems with a low cost fuze, the FSU-10/A, which at one time resulted in a back log of more than 500 unusable Phoenix missiles in storage which the Navy would not accept. The recovery plan for the fuze maker, Micronics, included production of 100 units per month and the elimination of the back log by mid calendar year 1989.

How is Micronics doing? What is the peak production of fuzes reached in the last 12 months? What is the current size of the back log? When do you estimate that you will eliminate the back log?

Answer. Micronics has been proceeding with fuze (safe and arming device) production since March 1988. The maximum number of fuzes produced in a single month was 65. As of April 1989, there were 325 Phoenix missiles in storage requiring fuze installation. A total of 708 missiles had already been delivered to the fleet. The current recovery schedule results in the elimination of all back logs by December 1989.

Question. In addition to its other problems, it also appeared that Micronics and/or its subvendors are under investigation by the Defense Criminal Investigation Service.

What is the status of the investigation?

How serious are the charges and what is the possible effect on fuze deliveries and quality?

Answer. The Navy has not been briefed on the complete details of the DCIS investigation, other than to be informed that it is "ongoing." The Navy is not privy to the exact charges that DCIS is investigating. If an indictment or conviction results, then the potential for suspension or debarment could adversely impact future procurement of items like the FSU-10/A, for which Micronics is the sole qualified producer. However, an alternate production source is being qualified to alleviate this situation. Suspension/debarment would not necessarily affect any existing contract deliveries. Normal contractual remedies have already been invoked to ensure that all delivered hardware will fully conform to contract performance and reliability requirements.

Question. Is the Navy doing all it can to get the fuze situation corrected? For example, why haven't you suspended progress payments to Micronics?

Answer. The Navy is taking all reasonable measures to correct Micronics deficiencies as soon as possible. The Navy has been doing a functional screen of all FSU-10/A's produced since August 1988. In addition, the Navy conducted an independent quality assessment review in October 1988 at the Micronics plant. This has been an ongoing program, through the past year, to improve the production rate at Micronics. Both quality and producibility of the FSU-10/A have improved as a result of these efforts, as substantiated by a follow-up quality review conducted in January 1989. Micronics now has work in progress to support a projected delivery rate of 100 per month.

One of the actions seriously considered, but not implemented was suspension of progress payments. Federal Acquisition Regulations require the contracting officer to notify the contractor and to evaluate the effect of progress payment suspension on the contractor's operations, based on financial condition, projected cash requirements, etc., prior to taking such action. Based on Micronics' December 1988 response to the required notification, progress payments have not been suspended because it would risk the financial collapse of Micronics, a small business. Under such collapse, FSU-10/A deliveries would halt until completion of the alternate source's qualification effort plus at least one year production leadtime.

HARPOON MISSILE

Question. The first SLAM (Standoff Land Attack Missile) variant of Harpoon was rolled out last November and is now scheduled for first free flight in June. The earlier plan had been February. What accounts for the delay?

Answer. The SLAM missile unique software is substantially off-the-shelf DoD existing equipment with some limited adaption for this application. The anticipated 5 month program delay is due to the integration effort required of this off-the-shelf hardware into the Harpoon airframe, and recently identified test range limitations. The missile integration involved new SLAM developed software for which the simulation tools for validation/verification of system software only recently (January 1989) became available. Test range limitations include environmental constraints at the White Sands Missile Range, New Mexico which are currently being accommodated in the revised test schedule developed by the program office.

Question. The production buys for SLAM, starting in 1987, are 14, 26, 72, 58, 113 and 29 missiles. Wouldn't a more level production rate result in greater efficiencies and less cost?

Answer. A more level SLAM production rate may not result in substantial efficiencies and cost reduction because SLAM major components come from off-the-shelf, in-production components from other weapons, thus tying SLAM hardware costs to those major components. SLAM is procured in the same line that produces Harpoon. The Navy's current priority is to procure as many SLAMs as possible while keeping the Harpoon production line open until the Navy inventory objective is bought. Harpoon has a seeker which is the driving factor to keep the Harpoon production line open. The minimum annual sustaining rate for the Harpoon seeker is 240 per year. Navy and Foreign Military Sales annual procurements maintain the minimum sustaining rate for the Harpoon seeker which keeps the Harpoon production line open until the Navy inventory objective is bought. The maximum number of SLAMs possible are bought after the Navy buy for Harpoon is determined.

Question. What is the facilitization rate for SLAM unique hardware?

Answer. The facilitization rate for SLAM unique hardware is 16 units per month.

Question. Provide the current status on the Improved Harpoon program, including additional capabilities achieved, unit cost difference, contract award, milestones, etc.

Answer. Improved Harpoon increases hit probability in complex Electromagnetic Countermeasures environments by providing reattack logic, lowering the aim point, and full utilization of way point capability of the Harpoon missile. Contract award is expected in April 1989. Improved Harpoon unit cost will be approximately $20–25,000 more than Harpoon, depending on the fiscal year procured. Retrofit will cost approximately $45–50,000 per unit, depending on the fiscal year procured. Improved Harpoon was authorized by the Secretary of the Navy as a Harpoon product improvement in a Program Management Proposal signed in November 1988. The program's major implementation milestones are as follows:

Contract award, third quarter fiscal year 1989.
Flight readiness review, first quarter fiscal year 1991.
Flight testing, first quarter fiscal year 1991.
Approval for full production, second quarter fiscal year 1991.
Initial operational capability, third quarter fiscal year 1992.

TOMAHAWK MISSILE

Question. Competition has resulted in tremendous savings in the Tomahawk program. The latest Navy estimates are that approximately $3.0 billion has been saved since 1986 due to second sourcing Tomahawk. The Committee has supported competitive levels for the Tomahawk program, including last year when we argued for the original budget submission for maximum competitive incentive. This year's request of 400 missiles places the program at the minimum sustaining rate. If this program is reduced in the administration's budget amendment, won't the contractors' incentive wither?

Answer. The short answer is yes; however, the issue is more significant than a simple withering of the contractor's incentives. When the competition was originally established, each contractor was guaranteed 30% of each year's buy provided that their bid for the minimum was consistent with their bid for the larger "swing" quantity. This guarantee was sufficient to induce each contractor to make the required large capital investment in their respective production facilities. Currently, each contractor's plant has a required minimum sustaining rate of 120 missiles per year (10 per month). As a result, 120 missiles per year corresponds to the 30% guaranteed quantity. Mathematically, this means that if 120 equals 30% of the total quantity, then the total quantity purchased per year must be at least 400 missiles. Since each contractor is guaranteed 120 missiles per year, for a total of 240, then it is necessary to determine how many missiles above the minimum must be offered in order to obtain the best competitive price. This "swing" quantity is satisfied by the 160 additional missiles which contribute to a cumulative annual buy of 400.

Question. Your current acquisition strategy is for dual source competition in 1990 through 1992 followed by competed multi-year buy for 1993 and 1994.

What savings do you think will accrue from a multi-year buy? Why don't you propose the multi-year before 1993? What criteria will not be met?

Answer. The Department of Defense expects to save $128 million or roughly 10% over the current dual source competitive procurement by entering into a dual source, multi-year arrangement for FY 1993 and FY 1994. The savings are expected to accrue from the contractors' ability to procure two years' worth of parts—economic order quantities—with the advance procurement in FY 1992 and the stability of quantity and variant mix which the multi-year procurement strategy demands. With the award of the advanced procurement in mid FY 1992, Navy will decide the winners and loser for a two year period, the yearly quantities which will be awarded, and the variant mix (nuclear, conventional, dispenser, etc.) for the FY 1993 and 1994 period.

The reasons multi-year was not proposed for any procurement earlier than 1993 are as follows:

1. Navy had just awarded a competitive contract to McDonnell Douglas for the development of the Block II Tomahawk missile which will not enter production until late 1992. One of the overriding considerations of a multi-year scenario is stability of design. To request a multi-year bid prior to 1993 would be to ask the contractors for bids for an as yet undermined design and prior to the time the technology for the new design could be transferred from McDonnell Douglas to General Dynamics.

2. The year-to-year programmming of quantities and variant mixes for Tomahawk have experienced dramatic swings since the program began production. For example, fiscal year 1993 quantities have changed from over 600 units to 400 units in the various budget submits since fiscal year 1984. Variant mix decisons are influenced by political, treaty, technical, and readiness pressures literally up to the day of contract signing. This factor alone would have been fatal to any multi-year scenario which requires as a minimum a stability of quantities.

3. Last, the Navy's experience with Tomahawk annual dual source competition has resulted in contract savings greater than the one-time multi-year savings which could have occurred earlier in the program.

TACTICAL AIR LAUNCHED DECOY

Question. After several years of funding, the 1990 budget contains no request for the Tactical Air Launched Decoy (TALD) program. The current TALD is an air-launched, expendable unpowered decoy. Unit costs are approximately $26,000.

Has the Navy requirement for TALD changed in the past year?

Answer. The Navy requirement for TALD has not changed over the last year. It remains a ——— TALD required. The Navy has purchased over 68% of its program objective for this weapon system.

Question. What is the requirement and how many units have been funded to date?

Answer. The requirement is ——— TALD with ——— purchased to date, and an estimated 1,500 are scheduled to be procured in fiscal year 1989. Thus far, there have been 80 losses which brings the total systems on hand at the end of fiscal year 1989 to ——— over 68% of the planning objective.

Question. Did the Navy include funding for TALD in its 1990 program objective memorandum.

Answer. The program objective memorandum is an internal DoD working document used as a step to formulate the President's budget. Because it is considered internal working papers, for the President's Budget, release outside of DoD is not considered appropriate.

Question. What is the statuts of the $40 million appropriated in 1989 for the TALD program?

Answer. The program is currently in source selection. Contract award is expected during late May 1989.

Question. When do you expect to go on contract and why has contract award been delayed.

Answer. Contract award is expected during late May 1989. A single award buyout was directed after release of the Request for Proposal (RFP). The delay was the result of the time required to recall, modify, and re-release the RFP.

Question. Why is the Navy apparently so enthusiastic about the TALD program while the Air Force is disinterested?

Answer. The Navy has a documented decoy requirement while the Air Force does not. The Navy requirement is based on a Low/Mid Intensity Conflict scenario.

Question. When will a production break occur in the TALD line if funding stops in 1989?

Answer. Without further funds a TALD production break will occur in August 1990.

Question. What are total projected program costs to completion for the basic and improved TALD program?

Answer. Projected average recurring program costs are $26,000 each for TALD. Improved TALD is not included in the current budget profile. The only documented program is to reach the requirement objective of ———. A decision for objective numbers of ITALD has yet to be determined.

Question. Assuming that additional funding were available, discuss the relative merits of continuing with the basic TALD program while developing ITALD and then retrofitting basic TALDS, as opposed to waiting for ITALD before proceeding with additional procurement.

Answer. The Navy position is that no decison was to be made until POM-92. At that time, the alternatives are to continue the basic TALD procurement, develop, and procure only the ITALD, or provide for a mixture of both. The Navy is presently studying these alternatives.

MK-46 TORPEDO SPARES

Question. Two years ago, when the regular MK-48 torpedo program was winding down, the Navy requested a buy out of funding for replenishment spare parts. The idea was to take advantage of a warm production line and thus save money in the long run. What has been the experience on the MK-48 spares buy out?

Answer. The MK-48 experience has been successful; however, for clarification, the MK-48 torpedo program did not buy out replenishment spares. They instead conducted a life-of-type buy out of production line spares in order to take advantage of potential cost savings made available by avoiding production line shut down and restart costs. This effort was funded through the Navy Stock Fund.

Question. Did you save money?

Answer. The buy out was accomplished to avoid parts obsolescence. Detailed estimates of projected savings were not made.

Question. Were forecast usage rates used in the computation accurate?

Answer. Not in every case; however, life-of-type quantities have been modified for those items to reflect reduced usage rates.

Question. Why doesn't the 1990 budget contain a similar request to buy out the MK-46 spares?

Answer. Several changes have been effected since the Committee was last briefed which has eased last year's spares problems. We have bought out those Torpedo Support and Navy Stock Fund spares considered most critical based upon subvendor delivery reliability. Previous unreliable small business set-asides created several shortages of spares; however, delivery reliability for these spares has improved significantly. Another positive change has been an aggressive re-evaluation of our torpedo maintenance and overhaul requirements. We have streamlined maintenance and configuration control policies and have significantly reduced the spares required.

Another contributing factor in our decision to not request a buy out has been the negative cost savings associated with handling and storage of the increased spares inventory. Additionally, as we transition to the MK-50, annual MK-46 spares requirements will continue to decline. A MK-46 spares buy out at this point risks the potential for considerable MK-46 spares going unused as the MK-50 inventory increases.

These factors considered, the Navy has retained sufficient fiscal and operational flexibility by adopting a reduced annual replenishment spares procurement strategy.

Question. What is the estimated cost to buy out the MK-46 spares?

Answer. Recent maintenance and exercise firing policy revisions have resulted in a spares requirement reduction to approximately $300 million for annual Torpedo Support and Navy Stock Fund spares buy out conducted over 23 years and $215 million if procured over a six-year period. However, there is a negative cost savings associated with a MK-46 spares buy out while transitioning to the MK-50. MK-46 handling and storage costs will increase as the spares inventory increases, and spares potentially could go unused as the MK-50 inventory increases. An annual procurement strategy minimizes risk and gives the Navy much greater flexibility.

Question. How much confidence do you have in the accuracy of the usage rates used in the computation?

Answer. With the stability afforded by recent torpedo maintenance and exercise firing policy revisions, and using the same algorithms that have proven effective in making usage rate predictions in the past, there is a high degree of confidence that the usage rate used in the computation will be accurate.

Question. What savings would the Navy realize if MK-46 spares were all purchased in 1990 compared to purchases during the next several years and compared to later purchases after a production break?

Answer. Due to prime and subvendor production limitations it is improbable that we can conduct a one-year buy out of all spares required for the remainder of MK-46 life cycle. The current spares procurement plan calls for annual procurements over the next 23 years for approximately $300 million. Procuring all spares over a six-year period would require approximately $215 million and multi-year Congressional approval. However, an annual spares procurement profile provides greater flexibility and minimizes the potential for MK-46 spares going unused as the Navy transitions to MK-50.

If a production break occurs, start-up and requalification costs are estimated at $6.4 million for each production line interruption.

MK-39 EXPENDABLE MOBILE ASW TRAINING TARGET

Question. The Navy requests $10.5 million in fiscal year 1990 to begin production of the MK-39 Expendable Mobile ASW Training Target (EMATT).

Has this program completed development, and if not when will that occur?

Answer. No. The program is ready to enter Full Scale Engineering Development (FSED) Phase II, a Test, Analyze, and Fix process, to increase the EMATT unit reliability prior to initial Operational Testing (OT-IIA) scheduled for first quarter fiscal year 1990. Final Operational Testing (OT-IIB) is scheduled for first quarter fiscal year 1991.

Question. Budget briefings show no development funding for this program in either fiscal year 1989 or in 1990. Why are there R&D funding deficiencies in this program, and how can the EMATT be ready for production when there is no funding to complete development?

Answer. RDT&E,N funds to complete EMATT system development include $3,882,000 in fiscal year 1989 and $2,513,000 in fiscal year 1990 columns of the fiscal year 1990 President's Budget request. The Navy currently plans to provide the $2,232,000 in fiscal year 1989 as a below threshold minor reprogramming. The EMATT program will be ready for Low Rate Initial Production (LRIP) in fiscal year 1990.

Question. What is the result of developmental and operational testing to date, what items are being addressed in the upcoming "test, analyze, and fix" process, and when will the Operational Evaluation (OPEVAL) be completed?

Answer. The latest developmental testing, conducted in December 1988, reflect favorable results. Unit reliability stands at .54. As a non-major program the Test, Analyze, and Fix process (TAAF), designed to improve reliability to .70, will test EMATT down to the subsystem level to evaluate its performance, and implement fixes as they are identified. Specific areas of concentration include Air Launch Survivability, Surface Launch Survivability, and In-Water Operational Reliability. Initial Operational Testing (OT-IIA) is scheduled for first quarter fiscal year 1990, with final Operational Testing (OT-IIB) scheduled for first quarter fiscal year 1991.

Question. The budget back-up material indicates that specifications are not available now and that Sippican will be the sole source supplier in 1990.

What's the rush?

Why shouldn't EMATT be competed from the start?

Answer. This program was originally projected to begin procurement in fiscal year 1988. The program has been delayed several times due to funding constraints, though the requirement has remained consistent. The first one year Low Rate Initial Production (LRIP) procurement will be awarded to the developer, Sippican, as an option to the existing Full Scale Engineering Development (FSED) contract. No other contractor is currently prepared to produce an EMATT. The EMATT design maturity will continue to increase until the end of the Test, Analyze, and Fix process (Phase II of FSED). Final reliability, producibility, and affordability considerations will result in additional configuration changes; therefore, a Build to Print Specification (Level III Technical Data Package (TDP)) is not available for a competitive bid. A Level III TDP will be developed during the LRIP contract for the competitive solicitation and award of the fiscal year 1991 full production contract and all follow-on production contracts.

Question. What is the total inventory objective or procurement objective for EMATT?

What is the total funding profile for EMATT throughout the FYDP?

Answer. EMATT is a training consummable with no traditional war reserve inventory (IO). An annual requirement of 5,100 units (3,900 air, and 1,200 surface) is comparable to the IO.

EMATT FUNDING PROFILE

[Dollars in thousands]

	Fiscal year—					
	1989	1990	1991	1992	1993	1994
RDT&E	3,882	2,513	0	0	0	0
Weapons procurement, Navy	0	10,491	10,852	11,242	11,210	11,192
Number of targets	0	1,105	1,460	1,700	1,700	1,700

BUDGET SCRUBS ON OTHER PROCUREMENT, NAVY

Question. A total of $5 billion is requested for the "Other Procurement, Navy" account. This represents an increase of $250 million from the current fiscal year.

What level of adjustment was made to this account in the internal "budget scrubs" prior to the submission of the fiscal year 1990 budget?

What further adjustment do you anticipate as a result of the ongoing effort to reduce the fiscal year 1990 budget by an additional $6 billion?

Answer. Prior to submission of the Department of the Navy's OPN budget to the President, detailed and comprehensive reviews are performed to assess program requirements and the resources required to meet those requirements. Since submission of the FY 1988/1989 President's Biennial Budget in January 1987, these reviews have resulted in a reduction to FY 1990 of $3,857.4 million. This reduction was assessed for a variety of reasons to include changes in acquisition strategies, a reevaluation of unit costs, and in some cases affordability.

Efforts are ongoing within the Department of Defense to scrub budget controls down to the revised FY 1990 levels being proposed. It is too early to assess the impact of budget reductions to Other Procurement, Navy. Information should be available in late April, early May 1989.

SATELLITE COMMUNICATIONS SHIP TERMINALS

Question. A total of $69.9 million, an increase of $59.5 million from FY 1989, is requested for SATCOM Ship terminals. Funds are requested to initiate in fiscal year 1990, procurement of EHF (Extremely High Frequency) terminals for the Milstar satellite system.

Five million dollars is requested for RDT&E on the Navy's Milstar terminal program and additional RDT&E funds are requested for FY 1991. The justification books state that for FY 1990, the Navy's RDT&E program for the Milstar terminal will identify, test and resolve both interoperability and compatibility issues. What confidence can you give the committee that the Navy's Milstar terminal is ready for procurement funding?

Answer. The Navy started Full Scale Development of its EHF SATCOM terminal in January 1982. Engineering development models of the AN/USC-38(V) terminal have been undergoing exhaustive testing since 1985. These tests include the following:

a. Factory acceptance testing verifying all technical aspects of operability (i.e., technical operation, man-machine interface) and environmental compatibility requirements (i.e., vibration, shock) from February 1985 to January 1988.

b. Four years of terminal testing with the FLTSAT EHF packages (FEP), which were separately developed test assets, specifically prepared to enable development, test and production of ground terminals prior to the first Milstar satellite launch. Test phases have included laboratory testing prior to payload launch followed by extensive on-orbit tests with terminals installed on operational subsurface and surface platforms and at a land based test facility.

c. Two test periods with the Milstar Design Verification Model at TRW, verifying compatibility with a processing payload functionally equivalent to the actual Milstar satellite. All tests, approximately 400, were completed successfully.

d. Four separate demonstrations of interoperability with Air Force and Army terminals in both the laboratory and in the operational environment through the on-orbit FEP.

e. An operational assessment in 3rd QTR FY 1988 by the Navy's independent test organization resulting in a recommendation for Low Rate Initial Production.

The success in the above tests is indicative of the sufficient maturity of the AN/USC-38(V) development. The AN/USC-38(V) design baseline has been effectively frozen since FY 1987. The Navy has implemented a design which has low technical risk, with the ability to readily accommodate additional emerging operational requirements with external processors/interface devices.

Question. What are the Navy's estimated per-unit cost for the Shipboard Milstar terminals?

Answer.

[Dollars in millions]

	Fiscal year—	
	1990	1991
EHF terminals	[1] 4.4	1.5

[1] FY 1990 unit cost include first year non-recurring costs, procurement of a ship version depot maintenance test bed, documentation requirements, and a requirement to establish a second source for the replacement units. Additionally, the quantity procured in FY 1990 is less than FY 1991 which is partially attributable to the higher unit cost.

Question. Provide for the record the Navy's inventory objective for Milstar terminals and the delivery schedule for these terminals.

Answer.

Inventory Objectives:	
Ship:	
Retrofit (OPN)	322
New Construction (SCN)	53
Shore	24
Delivery schedule: ———.	

COMMUNICATIONS SECURITY PROGRAMS (COMSEC)

Question. Included within the FY 1990 Other Procurement, Navy (OPN) budget request are a variety of programs designed to provide tactical communication security (COMSEC) for Navy ship-to-ship, ship-to-air, and ship-to-ship transmissions. Describe to the Committee the progress that is being made to overcome the damage done to the Navy communication security by the Walker case.

Answer. ———. The Navy Key Distribution System (NKDS) is a high priority R&D program established in coordination with NSA and JCS to provide for electronic generation, distribution and control of key.

The effect from a hardware standpoint has been the increased visibility and interest in maintaining required funding for the nationally directed block upgrade/replacement of selected equipments. ———.

Question. Is any single method of voice/data transmission particularly vulnerable to compromise?

Answer. The service-wide replacement of the previous generation of crypto is not a function of current vulnerability to compromise but a normal technological upgrade to preclude potential future vulnerabilities. ———.

Question. Which communications systems are receiving priority funding under the Navy implementation program?

Answer. Navy COMSEC procurement supports replacement of older crypto in current systems and crypto designed for new communications systems. ———.

Question. Do you expect funding for these programs to be protected given any further revision to the FY 1990 DOD budget?

Answer. Funding for Navy COMSEC procurement is part of a balanced plan provided in the President's Budget. The Department of Defense, in conjunction with the Department of the Navy, is currently reviewing the funding levels of all programs submitted in the FY1990/1991 Reagan Budget. It is too early to assess the impact of budget reductions to COMSEC programs. This information should be available by late April 1989.

SECURE TELEPHONE UNIT (STU-III)

Question. The STU-III is a secure telephone system which is to be used by all governmental agencies involved in sensitive or classified work. The Navy FY90 budget request before the Committee for the STU-III program is $22.8 million.

The Committee understands that the total buy of STU-III telephones was originally planned to be as high as 1.2 million units. The Navy's requirement included within that figure is stated at 241,000 units. The FY 1990 budget request provides for the procurement of 3,229 units. How many STU-III telephones has the Navy contracted for with FY89 and prior funds?

Answer. Total number of units funded in FY 1989 and prior is 34,129.

Question. Given the extremely low rate of procurement for FY 1990, is the inventory objective still valid?

Answer. The inventory objective, as shown in the budget backup book, of 279,061 is the current validated requirement.

Question. If not, what are the reasons for what appears to be a rather substantial down-sizing of the Navy's original requirement?

Answer. The Navy is currently reviewing the inventory objective for STU-IIIs which is anticipated to be completed by June 1989.

Question. The FY 1990 budget request includes $4.1 million for a line item identified as the "Red Switch Project." Please describe to the Committee the nature of the "Red Switch Project."

Answer. The Red Switch Project (RSP) is a JCS joint program with the Air Force as lead service. RSP provides for major command center switches at various locations world-wide. The Red Switch will allow users within a secure area (red enclave) to make secure calls up to TS/SCI using an unencrypted telephone connected to various crypto equipments. The RSP provides gateway interoperability between the major secure voice crypto systems in the DOD inventory including STU-III. The Navy involvement is to provide two switches (USCINCLANT and USCINCPAC).

Question. Is FY 1990 to be the only year of funding for this program?

Answer. Yes. All Other Procurement, Navy is in FY 1990.

SUBMARINE ADVANCED COMBAT SYSTEM

Question. A total of $245.5 million is requested for the "Submarine Advanced Combat System." This request includes $95.1 million to backfit three SSN-688 class submarines with Wide Aperture Arrays (WAA); and $150.4 million for a maintenance trainer for the SSN-21 class submarine.

As mentioned $95.1 million is requested to backfit three SSN-688 class submarines with Wide Aperture Arrays (WAA).

Describe to the Committee the function and capability of the WAA.

Answer. The Wide Aperture Array (WAA) will provide significant war-fighting capability to the SSN-688 by allowing rapid, accurate, single leg target motion analysis (TMA) ranging; more rapid and accurate firing solutions during engagements; excellent multi-target resolution during engagements; rapid, accurate resolution of incoming torpedoes, superior operation at high own-ship speed and will provide significant tactical advantage over an adversary in close encounters by providing accurate bearing and range information.

Question. What improvements will it offer over the existing system?

Answer. The WAA revolutionizes target motion analysis. Single leg TMA can provide target range in less ——— minutes. Current TMA procedures can take two to ten times as long during which time the risk of counterdetection increases significantly. The performance characteristics of the WAA result in an improvement of six to ten decibels in Figure of Merit for similar targets.

Question. The budget profile for the WAA shows wide fluctuations—from $95.1 million in FY 1990 down to zero in FY 1991, and there it ranges back up.

What accounts for these wide fluctuations?

Provide for the record the estimated per-unit cost of the WAA included in the five year defense plan.

Answer. Based on significant improvements in war fighting capabilities provide by WAA, the Navy has budgeted for procurement of systems lead-time away from the overhaul schedule of SSN-688s. Future funding will be budgeted to correlate with anticipated overhauls. The estimated unit cost as reflected in the FY 1990/1991 Biennial Budget is $31.7 million.

Question. Do you plan on retrofitting all SSN-688 class submarines with the WAA?

Answer. The Navy's current intentions are to install WAAs on all 688 class SSNs.

Question. Within the Submarine Advanced Combat System line, $150.4 million is requested for a maintenance trainer for the BSY-2 Submarine Combat System. The BSY-2 is the combat system for the SSN-21 class submarine. When is this maintenance trainer scheduled for IOC, (Initial Operational Capability), assuming the funds become available October 1?

Answer. The IOC date for the Maintenance Trainer is fourth quarter FY 1994. The acquisition strategy for the AN/BSY-2 program allowed for concurrent development and limited production. The maintenance trainer and other limited production units are required test and integration assets to reduce developmental costs and to support the SSN-21 delivery schedule. The execution of the maintenance trainer contract option in first quarter FY 1990 supports integration testing and accommodates the planned shipment of the system to Submarine Base, New London, CT to support trainer IOC.

Question. Explain the types of equipment included in this request.

Answer. The maintenance trainer includes full-up tactical hardware without sonar arrays and trainer unique equipment such as simulation/stimulation devices.

Question. Has the Navy also procured BSY-1 maintenance trainers, and if so, explain how much commonality there is between these two systems?

Answer. Navy has purchased one AN/BSY-1 maintenance trainer which will be delivered in May 1989. There is no commonality between the AN/BSY-1 and AN/BSY-2 systems.

SURVEILLANCE TOWED ARRAY SENSOR SYSTEM (SURTASS)

Question. A total of $15.3 million, double the fiscal year 1989 level, is requested for the SURTASS passive acoustic arrays which are towed by the T-AGOS ships. A significant portion of these requested funds are for "system improvements to correct deficiencies emergent during operations." What deficiencies have become apparent?

Answer. The SURTASS budget description is misleading due to the inadvertent omission of a key word. Rather than "system improvements to correct deficiencies emergent during operations," the description should read "systems improvements, and to correct deficiencies emergent during operations." Funds requested to correct deficiencies emergent during operations are a small portion of the overall Field Changes and Modifications element of SURTASS.

Question. What is the specific impact of these deficiencies on the operational capability of the SURTASS arrays?

Answer. The deficiencies identified have been minor equipment problems which have had little or no impact on overall system performance.

Question. What is the cost per array to fix these deficiencies?

Answer. The deficiencies have not been with the actual SURTASS arrays, which have more than met the specified capability, but rather with shipboard and shore processing equipment. In FY 1990, the only deficiency correction is to upgrade transformers on the shipboard array interface units to prevent system overload. This engineering change will be installed on T-AGOS 1 through 10, which are currently operational, during normal in-port availabilities during FY 1991, at a cost of around $10,000 per ship for a total deficiency correction cost of $0.1 million.

Question. Were the arrays not performing to the capability specified in the original contract? If so, is the contractor "picking up" any of the costs to modify these arrays?

Answer. The arrays have been performing to their original specifications.

Question. Provide for the record the schedule and cost for correcting these deficiencies on the entire inventory.

Answer. The $10.9 million balance of the Field Change and Modifications element in FY 1990 is for in-service upgrades to improve system performance ($10.3 million), and backfit replacements for equipment which goes out of production or becomes obsolete ($0.6 million). In-service upgrades include the Associated Support Mission Upgrade which will provide UHF secure voice capability for SURTASS ships to talk directly to fleet ships for direct battle group support and an onboard analysis capability to enhance SURTASS ability to target and classify contacts. Under backfit replacements, shipboard communications and computer access terminals are being procured to replace the original, mechanical teletype equipment now onboard SURTASS ships which is out of production and difficult to logistically support.

Question. Funds are also requested for one "backup" array. How many "backup" arrays are presently in the inventory or under contract?

Answer. There are presently no backup arrays in the inventory due to the loss of two arrays and two arrays damaged in the last 20 months. Three backup arrays are presently under contract.

Question. What is the inventory objective for "backup" arrays?

Answer. The inventory objective for backup arrays is five.

ENHANCED MODULAR SIGNAL PROCESSOR (EMSP)

Question. What is the minimum economic order quantity for the "B" and "E" versions, and in which fiscal years will the Navy procure at least those quantities?

Answer. For SEM B units of an average 5-3-1 configuration, the minimum economic order quantity is 48 units per year. Navy does not intend to procure this amount in any year. For SEM E units of an 11-8-1 configuration, the minimum economic order quantity is 40 units per year. Navy plans to procure at least 40 SEM E units per year in fiscal year 1993 and each year thereafter. Configuration numbers refer to the number of arithmetic processors, global memories, and data transfer networks, respectively.

Question. What annual procurement quantity is needed to support two sources for the EMSP and when will a second source be qualified?

Answer. Given its current size, the SEM B market does not warrant a second source vendor. Second sourcing of SEM E, now under review, will be introduced when SEM E production reaches about 80 units per year, probably in the fiscal year 1994 to fiscal year 1995 timeframe. A second source will be qualified in time to be able to compete in the same period.

Question. Compare the performance of EMSP ("B" version) to the currently-used UYS-1 processor, including throughput, sonobuoy capability, and reliability.

Answer.

	UYS-1	SEM B
Raw throughput (million OPS/Sec)	60 MOPS	504 MOPS.
Sonobuoy capab. (DIFAR)	5	35.
Reliability (predicted MTBF)	1,000 hours	1,650 hours.
Computing precision	16-bit fixed point	16 or 32-bit floating point.
Programmability	Assembly language	CMS-2 and flow graphs.
Technology	Small-scale IC 64 kilobit mem ICs	Med/Large-scale ICs VHSIC. 1 megabit mem ICs.
Unique card types	31	47.
Power reqnt	1,300 watts	3,700 watts.

Question. If funds were provided to begin production of the "B" version for the SQQ-89 "basic" surface ship combat system as soon as possible, what level of funding would be required, for what purposes and in what accounts?

Answer. No capability increase is provided to the SQQ-89 Basic solely as a result of substitution of EMSP for the UYS-1 signal process or currently in the system. The additional processing power available with EMSP cannot be fully utilized without additional non-recurring engineering costs outside the EMSP. The major active sonar improvements which are the key to the SQQ-89 Improvement Program (RDT&E) will not complete development until FY 1995. It should be noted that the SQQ-89 Basic with its current UYS-1 is regarded one of the most capable tactical ASW systems in the world.

Level of funding required:

Non-recurring $200 million plus.

Recurring, $2—$8 million.

Total, $222 milion—$288 million.

These figures are the prime contractor's current estimate for incorporating the EMSP. Of note; if funding were provided during FY 1989, the earliest design certification testing could be complete on the EMSP based SQQ-89 Basic system would be FY 1994. Procurement of the SQQ-89I is planned for FY 1995. Therefore, procruement of an EMSP based SQQ-89 Basic system would be for one year only with no performance upgrade.

Purpose:

Non-recurring: The non-recurring costs are to modify current design of SQQ-89 Basic to incorporate EMSP is place of the UYS-1. This includes conversion of all signal processing software code to allow for execution in the EMSP, development of the required Input Signal Conditioner, and required design certification testing to ensure the modified system performs as designed.

Recurring: The recurring costs are for procurement of the EMSP units themselves. The range of cost figures reults from the fact that the number of EMSPs required and the resultant equipment "footprint" is currently under evaluation. Another factor is that precise unit costs would be driven by market size.

Accounts:

As the FY 1994 market includes both SCN and OPN funded installation of the SQQ-89 Basic system, the non-recurring costs would come from Other Procurement, Navy funds. Therefore:

Shipbuilding and conversion, Navy, $10—$40 million.

Other Procurement Navy, $212—$248 million.

Total, $222—$288 million.

RELOCATABLE OVER-THE-HORIZON RADAR

Question. The Navy requests $87 million in fiscal year 1990 to procure one Relocatable Over-The-Horizon Radar (ROTHR) system. This would be the third system to be procured, and would be sited on the Southern coast of the United Kingdom.

When will ROTHR complete its operational evaluation (OPEVAL), and will the results be evaluated in time for Congress to consider them before appropriating these funds?

Answer. ROTHR's OPEVAL began in Early April 1989 and is scheduled to conclude 12 May 89. Typically, COMOPTEVFOR requires 90 days from the completion of OPEVAL to analyze data and submit a report on operational suitability and effectiveness. Data must be collected, correlated and analyzed to assess system effectiveness, so September is probably the earliest we can anticipate mature results.

Question. Does ROTHR meet all of its operational requirements today?

Answer. Results of the November operational assessment and TECHEVAL have shown that ROTHR meets, and in many cases exceeds, the current TEMP thresholds for aircraft detection and tracking.

Precisely quantifying ROTHR's ability to detect and track ships has proven more difficult than anticipated, requiring a longer period of testing than planned for this phase. To maintain the deployment schedule and satisfy CINCPAC's critical need for aircraft surveillance, the ROTHR TEMP was formally changed to require only an assessment of ship performance during the current OPEVAL and defer detailed performance quantification to the post deployment test period.

Question. Since the fiscal year 1990 radar system will be sited in the United Kingdom, have we fully explored cost-sharing options with the British government?

Answer. We have thoroughly explored cost-sharing options for the ROTHR system to be located in the United Kingdom. Costs, including personnel, will be equitably shared, based on a Memorandum of Understanding, currently under negotiation. Target date for signature is August 1989.

Question. Why are you requesting funds to procure a third ROTHR system when the first two systems are not yet under contract?

Answer. The ROTHR site in the United Kingdom responds to USCINCLANT and USEUCOM urgent operational requirements, providing radar surveillance in the Norwegian and Barents Seas to augment the currently inadequate air defense surveillance capabilities in this strategically important region. Procuring this system in FY 1990 will maintain the momentum of the cooperative ROTHR United Kingdom project and provide the earliest introduction of an important air defense capability.

The initial production contract will combine the procurement of the FY 1988 system and the two FY 1989 systems. This way, the start-up costs can be applied equally to each system. Unit cost reductions have been achieved due to the quantity buy of material and sub-contracted items. The FY 1990 system, a priced option on the contract, will also benefit from the quantity buy.

Question. The FY 1990 budget also includes $20 million in RDT&E funds for ROTHR systems upgrades. What are these upgrades, and why are they necessary?

Answer. In addition to pre-planned product improvements, the FY 1990 RDT&E budget for ROTHR includes Full Scale Development (FSD) efforts deferred from previous years. The Congressional budget reductions in FY 1987/FY 1989 ($10 million/$5 million) and program cost growths for correction of system deficiencies identified in early testing, made it necessary to defer completion of FSD efforts not directly related to development and testing of the prototype system. The FY 1990 RDT&E tasks include: (a) development of an Operational Control Center (OCC) training system; (b) correction of OPEVAL deficiencies; (c) testing of corrections and ship detection and tracking; (d) and the completion of prototype system documentation.

The OCC training system is a "must have" element of the ROTHR program. It will consist of a stand-alone OCC with operational system computers and display consoles in the ROTHR training facility at Northwest, VA. The OCC trainer will support both position and team training with two modes of operation. A mission replay mode permits data recorded on an operational system to be replayed, allowing Propagation Management and Assessment operators and Detection and Tracking operators to be trained with actual system data. A computer stimulation mode will emulate the operation of the radar and permits fully interactive team training. This trainer must be completed in time to support school house training for production systems beginning in FY 1992.

FY 1990 system improvements take advantage of knowledge and experience gained from development and testing of the prototype system. These efforts represent about one-fourth of the FY 1990 RDT&E budget. The objective is to implement those improvements that capitalize on the baseline system capacilities, thereby maximizing the return on the Navy's investment in the over-the-horizon radar. The planned upgrades include:

a. Raid Recognition. ROTHR has the capability to recognize that an aircraft track consists of multiple aircraft. This is accomplished with a special high resolution mode.

b. Detection and Tracking. Experience shows improvements are possible in the ROTHR aircraft detection and tracking capabilities. Improved processing techniques are needed to detect target signals in presence of spread doppler clutter, a phenomenon that will affect the ROTHR UK system performance particularly. Improving ROTHR aircraft tracker algorithms could permit tracking of small and maneuvering targets more reliably.

c. ECCM. This upgrade will improve recognition and mitigation of potential ECM. Development and operational testing experience was required to assist in selection of the most effective techniques for implementation.

d. Communication Connectivity. Significant operational payoffs may be achieved by providing an improved direct communication link to tactical forces. The current direct link from ROTHR to tactical forces is an HF radio broadcast to back-up the connectivity from ROTHR through the Fleet Ocean Surveillance Information Center (FOSIC). Technical alternatives will be evaluated in FY 1990 to determine the most effective techniques for providing ROTHR data to the tactical forces.

Question. For the record, explain why the fiscal year 1990 budget includes OPN funds for "test bed equipment", support and test equipment," and "level III drawing/technical manuals" for ROTHR.

Answer. Most of the FY 1988/1989 funding is required for system procurement. Therefore, the software support facility has been budgeted in FY 1990 "test bed equipment" element of cost. This funding profile balances the hardware delivery schedule and the software support facility completion. The "support and test equipment" line in FY 1990 provides the capability to make system repairs locally, rather than requiring return of components to CONUS. This not only reduces maintenance costs but rather minimizes the spare material required to maintain the supply pipeline.

The FY 1990 portion of the line labled "level III drawings/technical manuals" provides the final version of the drawings and manuals required to operate and support the deployed system. Preliminary technical manuals developed during FSD will be updated to production configuration and new manuals produced to support the on-site maintenance using the support and test equipment.

REACTOR POWER UNITS

Question. The justification book mentions that requirements are based on "total fleet requirements consistent with production capability".

What is the industrial capability to produce Reactor Power Units?

What specific ships will be retrofitted with the three Reactor Power Units requested in fiscal year 1990?

When will these ships be in overhaul to receive these Reactor Power Units?

Answer. There are currently two vendors who produce Reactor Power Units for the Navy. From year-to-year, the Navy attempts to level the workload input at these vendors by combining the requirements of the SCN budget with those of the OPN Reactor Power Unit budget. This so-called "level core procurement" plan ensures adequate work is available to keep both vendors viable. Without such a plan, it would be impossible to ensure the long-term viability of both vendors given the excess capacity present at each vendor.

The Reactor Power Units requested in the FY 1990 budget will be used to refuel SSN 688 Class submarines. Due to the lenghthy fabrication span (5–6 years) associated with these units and the shifting that goes on from year-to-year in the refueling schedule, it is not known which specific ships will be refueled with these units.

It is not known what specific ships will be refueled with these power units. However, based on current refueling schedules, these power units will be needed in the FY 1998 time frame.

Question. As mentioned the fiscal year 1990 request is for three Reactor Power Units—a total cost of $136.1 million, or $45.4 million per unit. What accounts for an increase of 8.6% in unit cost at a time when you would be procuring these Reactor Power Units as opposed to one in fiscal year 1989?

Answer. The power units being procured in FY 1990 are used to refuel SSN 688 Class submarines. The one unit bought in FY 1989 was a different type used to refuel SSBN 726 Class submarines. The two numbers are not comparable.

STRATEGIC PLATFORM SUPPORT EQUIPMENT

Question. The FY89 budget request was $43.0 million. The FY 1990 request of $114.6 million represents more than a doubling of the FY 1989 request. Furthermore, funding levels for the FY 1992 through FY 1994 time frame are over $200 million a year according to budget justification material.

Admiral, it seems that a major new start is underway with the program. Can you describe to the committee the exact effort that is taking place?

Answer. The FY 1990 budget request is for shore facility support—SUBASE Bangor, SUBASE Kings Bay and Land Based Evaluation Facility, Newport, RI—and alterations/Modifications for backfit TRIDENT ships. The majority of the difference between the FY 1989 and FY 1990 budget requests can be attributed to three major efforts. Approximately $46 million increase over FY 1989 is required to procure one Maintenance Trainer, one Operational

Trainer, one AN/BQQ-6 to AN/BQQ-5E conversion kit and seven AN/UYS-1 (Triple Advanced Signal Processor) in support of AN/BQQ-5E installation on TRIDENT submarines. The second item is the procurement of TRIDENT Planned Equipment Replacement Program (TRIPER) assets to support the Ohio Class ship maintenance plan as the Kings Bay facilities become operational (approximately $10 million increase over FY 1989). The third item represents long lead procurements of equipments in support of the SSBN 726 Depot Availability to be conducted at Puget Sound Naval Shipyard.

Funding increases to the $200 million level in FY 1991 through FY 1994 are also attributed to the above three items, with the AN/BQQ-5E the predominant item.

Question. What impact to operational readiness does this program have in the TRIDENT submarine?

Answer. This program provides direct electronic hardware support to all operational TRIDENT Class Submarines (currently eight ships) and SUBASE Bangor Training and Refit Facilities. This program provides for full-time up to date operational readiness of the deployed TRIDENT Platform and supports the class requirement of 99% availability.

Question. Provide for the record the funding mix between support equipment and alternation/modification effort associated with this program through FY 1994.

Answer. This question can be better addressed if the program is broken down to three main elements:

1. Alterations/Modifications.
2. Class Improvement Items (CIP).
3. Electronic Support Equipment.

For FY 1991 the Alterations/Modifications portion is approximately 15%, Class Improvement Items is approximately 10% with the remaining 75% attributed to Electronic Support Equipment. Although the FY 1992–1994 breakout has not been refined, it is anticipated to be at approximately the same breakout as FY 1991.

TOMAHAWK MISSILE SUPPORT EQUIPMENT

Question. The FY 1990 budget request for surface Tomahawk missile support equipment is $42.1 million. This program funds the acquisition of the Weapons Control System necessary for shipboard command and control of the Tomahawk missile.

How many Tomahawk platforms are to be outfitted with the Weapons Control System?

Answer. 91 platforms are to be outfitted with the Weapons Control System.

Question. How many platforms have been outfitted to date?

Answer. To date, 31 platforms have been outfitted; 16 of these platforms use the Armored Box Launcher; 15 use the Vertical Launching System. These figures do not include those still in shipyard. It does include those which haven't completed their certification.

Question. Have any difficulties been associated with the integration of the Weapons Control System on existing platforms?

Answer. There have been no difficulties with the integration of the Weapons Control System onto existing platforms.

Question. Integration costs contained in the FY 1990 request as well as prior years, constitute a significant percentage of the total program. Can you explain why integration costs for the Tomahawk Weapons Control System are so high?

Answer. The Tomahawk system is extremely complex with a great many critical interfaces. Considerable testing and quality assurance must be accomplished before the system is certified for the specific platform on which it is installed. In addition, the system is nuclear capable, which requires Independent Software Nuclear Safety Analyses to be conducted for it. This is a rigorous and costly validation of software associated with the Weapon Control System.

MEDICAL SUPPORT EQUIPMENT

Question. A total of $56.8 million, an increase of $7.9 million, is requested for fiscal year 1990 for Medical Support Equipment. $18.2 million of the total request for Medical Support Equipment, is for the replacement of existing worn out or obsolete medical equipment at Naval medical facilities.

What is the current shortfall of medical equipment at shore-based naval medical facilities?

Answer. We are procuring all essential equipment. The shortfalls that do exist are for replacement of older, although serviceable, equipment. In view of fiscal constraints we believe these shortfalls are manageable. Equipment downtime and the inherent inefficiencies in out-dated equipment can affect the quality of care in our medical facilities. We currently project funding backlogs of $47.8 million in FY 1989 and $68.3 million in FY 1990.

Several actions have been or are being taken to remedy this situation. The Blue Ribbon Panel is studying equipment purchase procedures and looking for equipment purchases with good return on investment. The Productivity Enhancing Incentive Fund (PEIF) is being used where appropriate to facilitate reducing the backlog of Medical Support Equipment.

Question. Are any of these facilities encountering regulatory or accreditation problems because of equipment shortcomings?

Answer. No, none of our facilities are encountering regulatory or accreditation problems because of equipment shortcomings.

Question. A total of $35.5 million is requested for Fleet Hospitals. These hospitals are to be deployed ashore in the rear of the combat zone to treat wounded sailors and marines.

Within this request, the largest increase is for Medical Equipment, which more than doubles to a level of $17.1 million.

Has there been a mismatch between the amount of money provided for the physical structures of fleet hospitals as opposed to the medical equipment that goes into the hospitals?

Answer. No. The $17.1 million figure for medical equipment acquisition includes:

$.25 million for replacement equipment (requirement generated from normal wear and tear on equipment accrued during Fleet Hospital training) at the Fleet Hospital Training Activity, Camp Pendleton, California.

$1.750 million for acquisition of Medical Advanced Base Functional Components.

$1.5 million to fund the acquisition of Navy's share of frozen blood earmarked for prepositioning in PACOM and EUCOM.

The balance of the $17.1 million figure ($13.7 million) represents the medical equipment acquisition costs for a 1000 bed Communications Zone Fleet Hospital. FY 1990 is the first time procurement of a 1000-bed hospital occurs. Prior to FY90, Navy had only procured 250-bed and 500-bed-sized Fleet Hospitals. The 1000-bed hospitals rely on existing buildings at the predetermined operating site. Because several fleet hospitals will be established within existing structures, a greater precentage of the procurement program will go towards medical equipment procurement.

Question. What is the inventory objective for Fleet Hospitals?

Answer. The inventory objective is to acquire 23 Fleet Hospitals.

Question. Provide for the record the procurement schedule for meeting that inventory objective?

Answer.

U.S. NAVY FLEET HOSPITAL PROGRAM

Fleet hospital	Bed size	Fiscal year—procurement date	IOC [1] date	Manning
1 CBTZ [2]	250	1983	January 1987	Active.
2 CBTZ	250	1983	March 1987	Active.
3 CBTZ	500	1983	May 1988	Active.
4 CBTZ	500	1983	July 1987	Active.
5 CBTZ	500	1984	November 1987	Active.
6 CBTZ	500	1984	January 1988	Active.
7 CBTZ	250	1984	December 1989	Selres.
8 CBTZ	500	1985	July 1988	Active.
9 CBTZ	500	1987	March 1990	Selres.
10 COMMZ [3]	1,000	1990	May 1992	Selres.
11 COMMZ	500	1986	January 1988	Selres.
13 COMMZ	1,000	1991	July 1993	Selres.
14 COMMZ	500	1987	September 1990	Selres.
15 CBTZ	500	1985	September 1988	Active.
18 CBTZ	500	1989	July 1991	Selres.
20 CBTZ	500	1987	June 1990	Selres.
21 CBTZ	500	1986	June 1989	Selres.
22 CBTZ	500	1985	April 1989	Selres.
23 CBTZ	500	1986	September 1989	Selres.

[1] IOC—Initial operating capability.
[2] CBTZ—Combat zone hospitals.
[3] COMMZ—Communication zone hospital.

FIREFIGHTING EQUIPMENT

Question. A total of $18 million is requested for a wide variety of firefighting equipment. The justification book mentions that lessons learned from the STARK and shipboard fires have emphasized the urgent need to upgrade features and design standards that contribute to survivability.

Put into perspective for the committee the extent to which the Navy's ships have state-of-the-art firefighting equipment.

Answer. Installed firemain (seawater) piping and portable CO2 extinguishers have been standard equipment for firefighting aboard Navy ships since before World War II. While CO2 extinguishers are being supplemented by more advanced extinguishing agents, the shipboard firemain system remains the primary firefighting system for general shipboard fires.

Since the 1970's additional firefighting systems have been installed in selected areas of most ship classes to improve firefighting effectiveness. Examples of these systems include Aqueous Film Forming Foam (AFFF) in bilges and flight deck areas, HALON 1301 systems in machinery spaces, portable HALON 1211 and PKP extinguishing units and Heating/Ventilation/Air Conditioning (HVAC) modifications to limit smoke spread or exhaust it to the exterior of the ship.

Priority for installation of these additional firefighting systems has been given to aircraft carriers, amphibious ships and surface combatants. Furthermore, firefighting improvements have received higher priority for installation than other areas of modernization.

The STARK incident served to reinforce the need for efforts already underway, and to focus R&D efforts towards improving firefighting effectiveness against vertical fire spread and the intense heat caused by burning missile fuel.

Of $18 million (OPN) requested for firefighting equipment in FY 1990, $10 million will procure HALON and AFFF systems for installations in ships. The remainder will be used for the procurement of Voice Amplifiers for Oxygen Breathing Apparatus (OBAs) and Damage Control Wirefree Communications (DC WIFCOM) devices for shipboard installation. Installations are funded with O&MN Fleet Modernization Program (FMP) funding. The estimated cost for installation of all types of FMP firefighting/damage control improvements is $63 million for FYs 1990–91.

To date, over 800 ShipAlt installations of HALON/AFFF systems firefighting improvements have been accomplished in 269 ships in 29 ship classes of the active surface Fleet. The estimated cost of installation only for this level of achievement exceeds $230 million.

Question. To what extent does the firefighting equipment in this line consist of equipment which can only be installed during a ship's overhaul as opposed to a simple installation or retrofit?

Answer. HALON and Aqueous Film Forming Foam (AFFF) systems installations can be relatively complex and expensive ShipAlts, depending on the size, age and configuration of the ship to receive the system. For example, HALON installation in an older conventionally powered aircraft carrier (CV) involves 11 widely separated spaces and installation of the total package requires over 10,000 shipyard mandays labor. Similarly, installation of the total AFFF system in the same CV requires an estimated 12,000 mandays labor.

Because of the complexity and cost of installation for a total HALON/AFFF system, the Navy has developed phased installation plans of firefighting improvements to be accomplished over a series of shipyard availabilities. This approach divided the HALON/AFFF system installation for a CV into 23 separate ShipAlts which could be accomplished in a shorter availability. This approach, of course, stretches out the time before the total system is in place, but also permits the cost of systems to be phased in over the active life of the ship.

On most ship classes, such as surface combatants and amphibious ships, HALON/AFFF systems are installed in one or two phased installations which can be accomplished during an availability shorter than a complex overhaul.

New construction ships have HALON/AFFF systems designed and installed during initial construction, and may require only a system upgrade at a later date.

Question. To what extent is there a shortfall of equipment for firefighting training—i.e., equipment such as a machine which produces fake smoke, etc.?

Answer. We have adequate resources for firefighter training. Essential firefighting equipment which has been upgraded or recently introduced to the Fleet has also been delivered to Navy training facilities for training use. Examples include the Naval Firefighter's Thermal Imager (NFTI), Firefighter's Ensemble (FEE) protective outfit, increased numbers of Oxygen Breathing Apparatus (OBA) cannisters, Exothermic Cutting Torch and Personnel Extraction Cutting Unit (PECU, a.k.a. Jaws of Life). These types of items are usually delivered to training facilities prior to Fleet delivery.

At shore based facilities, smoke generation for firefighter training is accomplished when real fires are set. On an interim and limited basis, a shipboard smoke generator was certified by Assistant Deputy Under Secretary of the Navy (Safety & Survivability) until an approved design is procured. Some concern exists about the effects of the simulated smoke residue on shipboard electronics.

Question. In the conference report on the FY 1989 Defense Appropriations Act, the conferees agreed that "the Navy should review the requirements for molded case circuit breakers and submit a plan for addressing any requirement with the fiscal year 1990 budget request."

Although the fiscal year 1990 budget request submitted to Congress on January 9, 1989 did not contain this plan, correspondence from the Secretary of the Navy to Members of Congress dated January 23, 1989 acknowledged requirements for molded case circuit breakers and indicated that the Navy was "looking at the best way to meet these requirements," and that the Navy was "making an effort to use current year funding to start up the program."

What is the current status of this program? Will the alterations to the January 9, 1989 budget request which now are expected to be submitted to Congress by April 24, 1989 reflect the conference agreement by including funds for this program?

Answer. We have analyzed the desirability of this program and selected breakers in the 250-1600 ampere range as likely candidates for backfitting. We have not yet identified resources necessary for design specifications and prototype development and therefore do not anticipate reflecting program funding at this time.

PHALANX AMMUNITION

Question. The Navy recently notified the Committee that it was changing its procurement strategy for penetrators for ammunition for the Phalanx Close-In Weapons System (CIWS). Previously, the plan was to have annual competitions between qualified depleted uranium (DU) and tungsten producers. Now the plan is to use only tungsten beginning in fiscal year 1990. What caused the Navy to change its mind?

Answer. There have been two ammunition initiatives pursued by the Navy in recent years; one was to qualify a second source qualification of tungsten alloy as an alternative to depleted urainum (DU) for the penetrator material. The second source qualification was won by E. Walters, La Vergne, TN to compete with the longstanding vendor Olin, Marion, IL. beginning in FY 1989. Qualification of tungsten was completed and approved and the Secretary of the Navy informed Congress in June 1988. The decision to use tungsten only vice competing the two penetrator materials was based on the significant cost and performance benefits of tungsten over DU.

Question. Did the Navy do live fire testing of both DU and tungsten to support this decision? If not why not?

Answer. The Navy's penetrator qualification test program has been conducted over a nine year period with hundreds of firings of both tungsten and DU Penetrators. The qualification criteria were identical for both DU and tungsten. Firings were conducted against actual warheads and plate array targets simulating the forebody of a cruise missile. These tests demonstrated convincingly that tungsten was superior to DU in all measures of effectiveness. The test criteria and effectiveness modeling have been empirically validated by live Phalanx firings.

Question. Did the Navy test the most advanced type of DU to support the decision? If not why not?

Answer. The Navy tested the most advanced DU penetrators provided by the manufacturer. In all instances the tungsten penetrators proved more effective than the DU materials prioritized as best by the manufacturer.

Question. What impact will this decision have on the domestic DU industry which also supplies penetrators to the Army for tank ammunition?

Answer. In coming to a decision concerning transition from DU to tungsten penetrators, the Navy worked closely with the Army to ensure that DU requirements for both services would not critically impact the DU vendors. The Navy plan to purchase mostly DU penetrators (80%) in FY 1989 will bridge the gap between the reduction in Navy requirements and the Army's demands for 105mm, 120mm and heavy armor beginning in FY 1990.

Question. Is sufficient tungsten available from domestic sources to support the Navy's program?

Answer. There are three domestic tungsten penetrator producers: GTE Sylvania, Kennametal, and Teledyne. There are sufficient tungsten resources in the U.S. to easily meet the Navy's ammunition needs.

Question. What, if anything, would cause the Navy to change its mind and allow DU to compete for penetrator requirements?

Answer. The Navy continues to evaluate penetrator effectiveness against more stringent, threat-driven requirements. If a DU penetrator were to prove more capable than tungsten in testing to these requirements, the Navy would desire the DU penetrator, provided that it could be procured economically.

SONOBUOYS

Question. The sonobuoy procurement budget totals $115.5 million in fiscal year 1991. This compares with funding levels of $131.5 million in fiscal year 1989 and $165.3 million in fiscal year 1988. Are sonobuoys becoming less important to the Navy?

Answer. Sonobuoys are not becoming less important to the Navy. The downward trend in sonobuoy funding from 1988 through 1991 is due to an overall affordability issue rather than to a decrease in sonobuoy importance.

Question. Is annual sonobuoy consumption being constrained by a shortage of sonobuoys?

Answer. Fleet requests for sonobuoys are generally constrained by the process of developing the Non-Combat Expenditure Allocation (NCEA), which considers previous consumption rates, inventory, programming objectives and anticipated deliveries.

Question. For the record, provide the annual consumption and annual procurement numbers by sonobuoy type for fiscal years 1987 to 1993.

Answer. The annual consumption and annual procurement numbers are provided below. Consumption in fiscal years 1987 and 1988 are actual expenditures, while fiscal years 1989–1992 are projected consumption rates published in the 1992 Non-Combat Expenditure Allocation (NCEA). Consumption figures for fiscal year 1993 are still under review.

ANNUAL COMSUMPTION

[Dollars in millions]

Type	Fiscal year—					
	1987	1988	1989	1990	1991	1992
SSQ-36	35.2	23.2	33.3	32.3	32.6	28.4
SSQ-53	204.4	205.9	275.6	284.2	298.9	255.4
SSQ-57	22.8	13.6	21.0	28.5	29.5	22.7
SSQ-62	17.8	19.8	22.1	28.6	41.0	40.9
SSQ-77	23.7	24.4	48.5	52.8	54.1	44.6

ANNUAL PROCUREMENT

[Dollars in millions]

Type	Fiscal year—						
	1987	1988	1989	1990	1991	1992	1993
SSQ-36	31.9	28.2	30.8	0	14.2	8.4	2.8
SSQ-53	273.3	267.3	213.8	223.8	148.6	88.4	55.0
SSQ-57	17.7	66.1	54.4	0	0	2.2	2.1
SSQ-62	20.9	44.6	23.7	21.4	20.8	9.9	5.8

ANNUAL PROCUREMENT—Continued

[Dollars in millions]

Type	Fiscal year—						
	1987	1988	1989	1990	1991	1992	1993
SSQ-75							0.6
SSQ-77	85.8	51.7	45.5	46.6	49.9	27.5	13.9
[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]	[Deleted]

NOTE.—Procurement is depicted in budget year. Procurement quantities are delivered into inventory in the following year.

Question. Are the war reserve requirements for sonobuoys decreasing? If yes, please explain.

Answer. The war reserve requirements for sonobuoys are not decreasing. War reserve requirements are expressed as Planning Objectives or Programming Objectives in accordance with the Non-Nuclear Ordnance Requirements (NNOR).

Question. For the record, provide the war reserve requirement and actual war reserve asset posture for sonobuoys for fiscal years 1987 to 1993.

Answer. The war reserve requirements and inventory positions are provided below. The inventories in FY 1987 and FY 1988 are actual year-end assets on hand, while the inventories in FY 1989 through FY 1992 are projections based on prior year assets, deliveries and expected consumption. Through First-In-First-Out inventory management, assets are continually rotated rather than having an amount set aside as dedicated war reserves. Consumption figures for fiscal year 1993 are still under review, as are requirements beyond FY 1991 ———.

Question. To what extent are war reserve assets being used for peacetime consumption in fiscal year 1988 and 1989? Provided a specific answer by sonobuoy type.

Answer. The war reserve assets in fiscal year 1988 and 1989 are above programming objective levels, but below planning objective levels in all sonobuoys except the AN/SSQ-57 which is below programming objectives. In fiscal year 1988, we procured 5.1 thousand fewer AN/SSQ-36's than projected fiscal year 1989 consumption, and 8.3 thousand fewer AN/SSQ-53's than projected fiscal year 1989 consumption, which will reduce war reserve inventory.

Question. What do you consider an adequate funding level for sonobuoys that sustains peacetime consumption and maintains the required war reserve level?

Answer. We currently have budgeted adequate funds for sonobuoys in light of fiscal constraints. However, the funds which would be required in FY 1990 and FY 1991 to build and maintain programming objective inventory levels, while satisfying fleet peacetime consumption requirements, follows. ———.

[CLERK'S NOTE.—End of questions submitted for the record.]

TUESDAY, MAY 2, 1989.

SHIPBUILDING AND CONVERSION, NAVY

WITNESSES

EVERETT PYATT, ASSISTANT SECRETARY OF THE NAVY, SHIPBUILDING AND LOGISTICS

VICE ADM. JOHN NYQUIST, USN, ASSISTANT CHIEF OF NAVAL OPERATIONS, SURFACE WARFARE

VICE ADM. PETER HEKMAN, JR., USN, COMMANDER, NAVAL SEA SYSTEMS COMMAND

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This afternoon's hearing will be on the budget request for Navy Shipbuilding and Conversion. The current request of $9.6 billion for 17 ships is a reduction of $800 million and 3 ships from the original budget proposed in January. Included in the revised total is $3.6 billion for destroyers, $2.9 billion for attack submarines and Tridents, and $650 million for the carrier service life extension program.

We are pleased to welcome today Mr. Everett Pyatt, the Assistant Secretary of the Navy for Shipbuilding and Logistics, Vice Admiral John W. Nyquist, Assistant Chief of Naval Operations for Surface Warfare, and Vice Admiral Peter M. Heckman, Commander of the Naval Sea Systems Command. Vice Admiral Heckman, we are pleased to welcome you to your first appearance before the Committee.

I want to compliment you Secretary Pyatt because I know you are always pressured with a tremendous amount of requests and suggestions from all sides. I know now that the USS *Roberts* is almost finished. I can't figure out how you knew, not having been over there, that the damage estimate was going to be under $100 million, but you did. It has been on time and you have done an excellent job.

The ships we have are in good shape, and I think that is a compliment to the Navy and to yourself, and we really appreciate your dedication to the job. We may have a few disagreements, but there is no question in our mind you have tried to inspire competition and the shipbuilding programs have been better because of it.

I appreciate the work the Navy has done. If you will, summarize your statement for us and we will go to questions. We will put your entire statement in the record.

SUMMARY STATEMENT OF MR. PYATT

Mr. PYATT. I appreciate the kind words you had. Unfortunately, it can't all be for me. It has been a team effort. We have a lot of people in civilian and in military attire who have contributed to all these things, a high degree of skill in these people, and I think it shows the depth of management capability that we have over there. I know people sometimes like to bash folks in the government for doing things, but when it is all said and done, this team has put together ships that work and at a price that has been favorable and below expectations of history. I think that is a credit to them, and I have only managed to be the coach every now and then and the cheerleader. I certainly appreciate your kind words and the confidence of your committee, because it has been strong every year. We have been quite fortunate with this committee. We appreciate that.

I have a written statement for the record. I would like to focus on a couple of things.

You mentioned competition. I think about the things that make the Navy that we have possible and that was one. We started out a few years ago, I have a little chart I have used that goes from 1971 to 1988, and it shows the cost compared to the budget, cost growth.

You remember the period in the early 1970s where we had to come back to this Committee for a Supplemental Appropriations bill to finish the ships already under construction. They were 20 percent above budget or thereabouts. Then, subsequent to the settlement of the claims by Mr. Hidalgo, we were able to get down for the period of 1976 to 1981 generally to where the budgets and the costs were the same.

Then when we came along, we were able to apply the competitive structure of this country and change the culture of the way things happened. As a result, they have been able to produce under-runs totaling $9.3 billion. That is really the credit to the whole team.

There are three segments that people often ask about acquisition and reform and a lot of them miss the substance. You have to know your product. At the beginning you can see the result of going to contract too early on a fixed-price base; neither party fully understood all the issues.

The second segment where we about match costs and budgets, most contracts were cost plus because we couldn't get contractors to take them on other terms and they managed to spend all the money available.

Then we got to the current environment. We worked hard to get the designs down to where the contractors and the Navy knew what they were buying and we were able to apply the considerable management skills of the country to reduce prices.

I would like to commend competition, and the report of the Navy competition advocate. There is a little here on shipbuilding, but there is a lot on other things, all of which is spending money that this committee originates. I brought enough copies for the committee. I think it is a nice, slim document that says "here are the results and you ought to expect this from all services." You earlier asked, a year or so ago, that maybe we ought to write some of this information down because somebody might find it interesting reading in the future. So we prepared this document, which discusses 10 or 12 systems that we converted from the noncompetitive to competitive environment, missiles and ships, a variety of things. When you coverted to competition, you immediately got a 15 to 30 percent cost reduction, and that is a lot. We were able to buy more weapons.

I think in the coming environment, it sets the possibility of being able to keep the force posture that you have seen, in a tougher environment. It is kind of a slim document, but again, it is the result of an awful lot of people's work, a lot of program managers being dedicated and successful; and there is a program in there that didn't go so well, too, but we tried. So I think it is interesting, and it may be valuable in some of the other things you do in other programs.

I know you have quite a few questions that you would like to ask, and we would like to get to answering those. So I think probably the best thing to do is to let you get to the issues you would like to raise.

[The statement of Mr. Pyatt follows:]

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RELEASED BY THE HOUSE
APPROPRIATIONS COMMITTEE

STATEMENT OF

EVERETT PYATT

ASSISTANT SECRETARY OF THE NAVY
(SHIPBUILDING AND LOGISTICS)

BEFORE THE

DEFENSE SUBCOMMITTEE

OF

HOUSE APPROPRIATIONS COMMITTEE

ON

SHIPBUILDING

2 MAY 1989

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APPROPRIATIONS COMMITTEE

I am pleased to appear before this committee, along with Admiral Hekman and Admiral Nyquist, to discuss our progress in constructing and sustaining the Navy's force levels. The Admirals beside me are more qualified than I to comprehensively address United States Naval force planning, the status of Naval shipbuilding program plans and how we intend to utilize our force. I want to focus today on the importance of the Navy ship acquisition program and what we have done to insure that the best value is received for each defense dollar.

The Navy and this committee share the public concern regarding effective management of every federal expenditure. We also share a national commitment to sustain a credible military posture to deter actions threatening our security. These considerations are reflected in the FY 90/91 Navy Shipbuilding Budget Request. Because last year included 2 carriers this request is 22% lower than the FY 88/89 shipbuilding appropriation, yet it ensures continuation of the minimum naval force levels necessary to meet our military requirements. However, as I have reported to this committee in past years, attainment of our goal of a 600-ship Navy requires an average of about $12B per year in FY 89 dollars. This is consistent with prior estimates.

The readiness of our ships today has improved by over 100% since the start of this decade, while Navy air squadron readiness has improved by a factor of three. Our record is impressive and could not have been achieved without the support of this committee, the Congress and the American people. Proposals have been made to reduce the readiness of the Navy as a way of reducing the DoD budget. That would be a return to the bankrupt policies of the 1970's, a situation all of us tried to correct over the last several years. We should not repeat that mistake. Likewise, we continue to hear demands that the number of Navy carrier battle groups can be reduced at no cost to readiness, optempo or personnel. I would like to focus on that issue a moment.

The Navy's deployable carrier force was pared from 15 attack aircraft carriers and 9 ASW carriers in 1968 to 12 multipurpose carriers by 1980. As a result, one aircraft carrier was forced to serve an 8 month uninterrupted Indian Ocean mission in the midst of the Iran crisis. As has been described many times before to this committee, this force level was below what the Navy believes is the minimum force level necessary to support our worldwide commitments.

In the most recent history, aircraft carriers have served this country as an instrument of national will; in several cases in direct response to international terrorism. The Achille Lauro hijacking, the Libyan bombing of 1986 and support of our recent successes in the Persian Gulf are representative examples. The mobility and effectiveness of the carrier battle group continues to successfully stabilize one crisis after another. They have been the backbone of this nation's ability to keep the peace.

However, the emergence of ever more lethal weapons and technology in the hands of expanding numbers of autocratic nations predicates the need for increased reliance on these mobile carrier forces. The potential conventional challenge is not declining. It is growing more dispersed. Seventy percent of our crises around the world requiring a military response since WWII have included the carriers.

Because of the recent Soviet "peace initiatives" many argue that U.S. defense expenditures should be cut. While we can remain optimistic about the threat of global war and of Soviet intentions, we must await the actions to match the words. Ship force levels can be reduced quickly, but it takes a long time to reconstitute forces. Modern ships are years in construction and require billions of dollars of investment. In view of the history of Soviet leadership succession in the 1980s, U.S. force level paring should not be initiated with aircraft carriers, which require seven years of construction. The aircraft carrier continues to provide us with a versatile, flexible and mobile force and is the most difficult of all to reconstitute.

In the global context we recognize that ninety-nine percent of United States overseas trade travels on the surface of the world's oceans. This fact will not change. Our Naval commitments are critical. The sea lanes, world wide, must never be subject to political intimidation and this can only be guaranteed by maintaining a flexible offensive strike force. Only a sea based force, including airborne capabilities provided by carriers, is able to ensure the safety of the depths below and the airspace above those critical sea lanes of commerce both during peace and during conflict.

Recognizing the necessity to support our global and varied commitments during the 1990s, Congress wisely funded the modernization of the Navy during the past decade including four aircraft carriers. The Navy's carriers must be there when the nation needs them. It is only the carrier battle group that can bring power to bear worldwide without the need for land based support. We didn't pick the fight in Lebanon or Lybia or the Persian Gulf. We don't know when or where the next Achille Lauro will occur. But history proves it will occur. It now appears that due to fiscal constraints this minimum force level cannot be maintained.

Shipbuilding Programs

Last year I reported on several programs. I would like to update that report.

Landing Craft Air Cushion (LCAC)

With the help of Congress, we achieved full rate production with the FY 1989 procurement. All 15 craft from FY 1989 are under contract with our two craft builders. We seek continuation of high rate production of LCAC which is bringing over-the-horizon assault capability to our amphibious forces.

Mine Warfare Ships

After years of difficulty, our mine warfare shipbuilding programs are at last on track. We have awarded the MCM program buy-out contract and seek funding for the final three ships with FY 1990 budget. In the MHC 51 program, we have achieved significant milestones. The lead ship contract has been definitized and one follow ship has been awarded to the lead shipbuilder. We will establish a second shipbuilder in this program with competitive award of one of the FY 1989 ships. We now seek funding for one MHC follow ship in FY 1990 due to fiscal constraints which delay us from properly ramping up to full rate production. The MHC 51 program is achieving our twin thrusts of technological transition to modern glass reinforced hull technology and of low-cost effective mine warfare ship force building.

Attack Submarines

We achieved a significant milestone in the future submarine force by awarding the lead ship construction contract for the SSN 21 class. We now seek funding in FY 1990 for the final SSN 688 class submarine as we transition to SSN 21 class follow ship production in FY 1991.

Fleet Oilers (TAO)

With the help of Congress, we were funded in FY 1989 to buy out the program at a cost efficient production profile. We have worked closely with Congress in our acquisition strategy for completing this program. All FY 1989 ships have been awarded. I would note that our studies of shipyard requirements undertaken to define the TAO acquisition strategy clearly show that Navy programs alone will not sustain the U.S. shipyard industrial base at its current level.

Destroyers

Last year, again with the help of Congress, we were able to achieve full rate production and awarded follow ship production contracts for five ships split between the two destroyer shipbuilders. We seek continuation of full rate production for five ships in FY 1990. Full rate production will continue the favorable follow ship cost trend I reported on last year. As I also reported last year, we plan to build AEGIS destroyers for many years. No other destroyer in production anywhere in the world can match the capabilities of our AEGIS destroyer; and as the future unfolds, others will also see that the DDG 51 class represents the minimum price of entry into modern high threat surface warfare.

Second source production of the AEGIS combat system was initiated last year. We are very sure that the cost savings projected in our second source study will be exceeded. Competition has proved its value again.

Ocean Surveillance

We have a new shipbuilding program this year of particular importance to our anti-submarine warfare initiatives. We are requesting the lead ship of the TAGOS 23 class. With the foresight and help of Congress, we started the first Small Waterplane Area Twin Hull (SWATH) ship program in the United States--the TAGOS 19 class now under contract. We are undertaking a low risk extension of SWATH technology to increase the mission payload of our ocean surveillance ships and plan to begin the TAGOS 23 class program in FY 1990. The design issues I mentioned to this committee last year have been resolved. The TAGOS program has achieved remarkable operational performance and the SWATH ships will extend our operating areas into the rougher, more northerly seas. This is one of our highest leverage, low cost naval shipbuilding programs.

Competition

The American taxpayer continues to be well served by the aggressive competitive procurement policies that the Navy has taken a leadership role with Congress in developing and implementing. The 1970's were characterized by requests to the Congress by the Navy to fund shipbuilding cost growth on prior year programs that in some cases exceeded 30% of the original appropriation. This was an era of awarding ships without adequate design and of low producibility while under severe inflationary pressure. The economic and acquisition policies of this administration and the Navy instituted early in this decade brought an end to this practice and stabilized costs within budget. Improvements in the post 1981 programs produced underruns in shipbuilding programs as much as 15% below appropriated levels.

The percentage of Navy procurement dollars competed annually (over $50B) has more than doubled since FY 82, rising from 27% to 56% in FY 88. This was achieved by competing 92% of Navy contract actions in FY 88 contrasted with only 30% in FY 82. Competition has been institutionalized in the Navy.

The savings generated by our competitive initiatives have even exceeded our expectations while completely discrediting the nay-sayer's flawed analyses predicting higher net costs. The cumulative awarded Navy shipbuilding program since FY 83 is now being executed for $9.3B less than the President's Budgets. In fact, the most recent Navy analysis shows that second sourcing for the fully awarded CG-47 program resulted in $1.7B of savings. The introduction of a second source for the Navy Standard Missile is generating savings of $660M through FY 94. Second source savings for the five ship LSD-41 buy was $380M while the Tomahawk missile sill accrue savings of $630M through FY 94 due to the injection of competition. Our MK-41 Vertical Launch System is enjoying similar savings of $310M. Furthermore, our analysis shows that the payback of investment necessary to initiate a dual source normally occurs within two years of the introduction of production competition. This makes sole source programs with limited years of remaining production viable candidates for competition.

The evidence is overwhelming that the competitive marketplace serves as our best pricing mechanism. The competitive foundation laid during this decade is providing a better equipped and stronger Navy at a reduced cost for the taxpayer. The Navy Competition Advocate General report documents the results of these efforts.

FY 1989 Programs

We have continued our policy of timely contract award as we sustain the naval shipbuilding industrial base. More Americans are employed today building only Navy ships than were employed building both Navy and commercial ships as recently as 1972. Employment supporting Navy construction has doubled from 26,166 in 1972 to 51,670 today. Over 97% of today's shipbuilding production workforce is performing Navy work in contrast to 57% in 1972. The Navy shipbuilding program is a vital element in maintaining the shipbuilding industrial base. However, the recent decision to retire 7 DDG's early and transfer 10 FF 1052s to the reserves will reduce the amount of available repair and maintenance work.

We have awarded contracts for all the ships funded by Congress in FY 1989 with the exception of the second source follow ship in the MHC 51 program. We expect to complete our competitive selection for the MHC second source this spring. We are organized and staffed for efficient programmatic action and we stand ready for timely execution of the FY 1990 shipbuilding program.

Overruns

Last year I reported to this committee on the overall status of our shipbuilding contracts and our aggressive use of cost incentive share lines. These share lines continue to be an effective management tool in controlling costs. Issues have been resolved regarding cost increases on the share line. These costs are within funds available to the Navy. Although several of our programs have risen above target prices I am happy to report that the situation has not deteriorated since last year. Estimates of the Navy's ultimate share of any additional costs continue to range between contractor estimates of $600 million and and Navy estimates of $1.3 billion as I reported last March. Again I repeat, I do not currently foresee the need for additional money to pay these bills.

Summary

Our challenge for the future is to continue our cost effective force sustaining ship product lines within fiscal constraints. As I reported last year, our best prospect for achieving this is to continue to base our force building plan in shipbuilding on two fundamental principles. These are: (1) maintain a long term, stable economic production plan for each ship type required by the operating forces, and (2) use head to head competition to foster cost reduction, control inflation, and improve quality. These principles have been applied resulting in our successful Navy force building program while underrunning the President's shipbuilding budgets by $9.3B.

Mr. MURTHA. Admiral Nyquist.

SUMMARY STATEMENT OF ADMIRAL NYQUIST

Admiral NYQUIST. I have just a very brief one. It will be very short, sir.

It is my privilege today to present the Navy's SCN budget, Mr. Chairman, for fiscal year 1990 and to review our five-year shipbuilding plan. To execute the U.S. Navy's missions of strategic deterrence, sea control, power projection and strategic sealift across the entire range of possible threats, we require quality, capable forces in the right numbers. If we fall short, our ability to continue to deter global war and to successfully accomplish national objectives as they may be assigned to the Navy will be uncertain.

The ships which are included in our 1990 budget request have roles across the entire spectrum of conflict, from overseas presence during peacetime to general war. Deterring the Soviet Union remains a primary challenge for our deployed Navy.

In order to meet these objectives at our current level of operational commitments, while maintaining acceptable levels of OPTEMPO/PERSTEMPO, we need a balanced capability reflected in a force of 15 deployable carrier battle groups, four battleship battle groups, 100 attack submarine, amphibious lift for a Marine Expeditionary Force and Marine Expeditionary Brigade, and sufficient strategic submarines, support ships and strategic sealift.

In proposing budget adjustments needed to comply with the recent bipartisan fiscal year 1990 budget agreement, the Secretary of Defense has decided to maintain our existing level of 14 deployable carrier battle groups, rather than increasing to 15 as scheduled.

As the Secretary of Defense advised the Congress during his presentation of the budget, his intent is that operational commitments will be reduced to meet OPTEMPO/PERSTEMPO goals.

Our overall goals for deployable aircraft carriers, battleships and nuclear attack submarines will have to be delayed. The aircraft carrier USS *Abraham Lincoln* (CVN 72) becomes operational in 1990, and we will decommission *Coral Sea* in fiscal year 1990.

We commissioned our fourth battleship, the USS *Wisconsin*, last October, and we expect to achieve our amphibious lift objective in the late 1990's.

Our most serious deficiency is in modern battle force capable anti-air warfare combatants. Given the present fiscal constraints, the achievement of our objective level for these ships will not occur until after the turn of the century.

Mr. Chairman, that concludes my overview of the fiscal year 1990 SCN budget request, and I appreciate the opportunity to appear before you and urge your continued strong support, as Mr. Pyatt has stated, in support of our shipbuilding program.

[The statement of Admiral Nyquist follows:]

NOT FOR PUBLICATION UNTIL RELEASED BY
HOUSE ARMED SERVICES COMMITTEE

STATEMENT OF

VICE ADMIRAL JOHN W. NYQUIST, U. S. NAVY

ASSISTANT CHIEF OF NAVAL OPERATIONS

(SURFACE WARFARE)

BEFORE THE

SUBCOMMITTEE ON

DEFENSE

OF THE

HOUSE APPROPRIATIONS COMMITTEE

ON THE

FY 1990 SHIPBUILDING AND CONVERSION, NAVY BUDGET REQUEST

02 MAY 1989

NOT FOR PUBLICATION UNTIL RELEASED BY
HOUSE ARMED SERVICES COMMITTEE

VICE ADMIRAL JOHN W. NYQUIST, U. S. NAVY

Vice Admiral John W. Nyquist, son of the late Rear Admiral Walfrid Nyquist, USN (Retired) and Irma Beske Nyquist, was born in San Diego, California in 1933. He is a 1955 graduate of the United States Naval Academy.

At sea, Vice Admiral Nyquist has served in cruisers, destroyers and minesweepers including USS OZBOURN (DD 846), USS COCHRANE (DDG 21), USS HORNE (DLG 30) and USS PRIME (MSO 466). He commanded USS SEMMES (DDG 18) from 1973 to 1975 and Destroyer Squadron THIRTY-SIX from 1979 to 1981.

Ashore, Vice Admiral Nyquist is a 1963 Ordnance Engineering graduate of the Naval Postgraduate School. Other assignments have included the staff of Commander, Anti-Submarine Warfare Force, Pacific, the U.S. Military Assistance Command in Viet Nam and various tours in the Bureau of Naval Personnel and OPNAV.

Following his flag selection in 1981, Vice Admiral Nyquist served two consecutive OPNAV tours, first as Director, Command and Control Support System and Information Systems Division (OP-942) and Director of Navy Automatic Data Processing Management under the Assistant Secretary of the Navy (Financial Management). During this tour, he participated in a major reorganization of Navy ADP management. In September 1982, he was ordered as Director, Surface Combat Systems Division (OP-35) which included duties as OPNAV sponsor of the ARLEIGH BURKE (DDG 51) shipbuilding program. During this period, the lead ship was authorized by Congress in the 1985 budget.

Returning to sea, Vice Admiral Nyquist took command of Cruiser-Destroyer Group FIVE homeported in San Diego, California in May 1985. During this tour, he commanded the USS CARL VINSON and USS KITTY HAWK Battle Groups. From September 1986 through October 1987, he served as Assistant Deputy Chief of Naval Operations (Surface Warfare). In November 1987, Vice Admiral Nyquist was assigned as Assistant Chief of Naval Operations (Surface Warfare). He was promoted to Vice Admiral in December 1987.

Vice Admiral Nyquist has been awarded the Legion of Merit with three gold stars, the Bronze Star, the Meritorious Service Medal, the Navy Commendation Medal with gold star and two Meritorious Unit Commendations. He is married to the former Penelope Ann Lyon of Menlo Park, California. The Nyquists have two children, Tom and Andrea.

SHIPBUILDING AND CONVERSION, NAVY (SCN)

Mr. Chairman and distinguished members of the committee, I am Vice Admiral John W. Nyquist, USN, the Assistant Chief of Naval Operations (Surface Warfare) and the sponsor for the Shipbuilding and Conversion, Navy (SCN) Appropriation.

It is my privilege today to present the Navy's SCN budget request for Fiscal Year 1990 and to review our Five Year Shipbuilding Plan. The ships in this plan will sustain and upgrade the capabilities of the Fleet to enable us to keep pace with the threat and carry out the maritime component of the U.S. national strategy into the next century.

For more than forty years the national military strategy has successfully underwritten worldwide security and stability. Today, while that strategy remains unchanged, acquiring the means to execute it faces rigorous review and challenge. We are faced with difficult choices driven by a dynamic threat, competing national priorities and restricted fiscal resources. We must proceed cautiously in implementing fiscal savings to ensure that the force structure directly supporting our national strategy of forward based, coalition defense is not weakened. To execute the U.S. Navy's missions of strategic deterrence, sea control, power projection and strategic sealift across the entire range of possible threats, we require quality, capable forces. If we are not prudent in developing and maintaining these capable forces, our ability to continue to deter global war and to successfully accomplish national objectives as they may be assigned to the Navy by the President will be uncertain.

VG-1

The United States is physically separated from the majority of its allies, trading partners and necessary raw materials by the world's oceans. This is the fundamental reality that shapes national security policies. Therefore, we require command of the seas to ensure our survival. In support of our national security policy, the United States has entered into defensive alliances and treaties with more than 40 countries worldwide. This global framework is the primary determinant for our force level requirements and ultimately shapes our shipbuilding program.

VG-2

The ships which are included in our 1990 budget request have roles across the entire spectrum of conflict, from overseas presence during peacetime to general war. At the low end of the spectrum, our peacetime operations enhance deterrence worldwide, support U.S. diplomacy, and provide for rapid response in a crisis. At the high end, our fleet ballistic missile submarines provide the threat of global nuclear response which forms the basic underpinning of our deterrent strategy.

Deterring the Soviet Union remains a primary challenge for our deployed Navy. Glasnost and Perestroika are encouraging developments, but are aimed at repairing a sagging Soviet economy. As Admiral Trost has pointed out, if these policies succeed, the military potential of the Soviet Union will eventually be greater than it is now. Their attempt to maintain full employment makes it highly doubtful that we will see any slackening of their shipbuilding efforts for some time to come.

VG-3

FORCE LEVEL OBJECTIVES

Our current naval force level objectives are:

- 20 to 40 Ballistic Missile Submarines*
- 15 Carrier Battle Groups
- 4 Battleship Battle Groups
- 100 Nuclear Attack Submarines
- Amphibious lift for the assault echelons of a Marine Expeditionary Force (MEF) and a Marine Expeditionary Brigade (MEB).
- 14 Deployable Mine Countermeasures Ships
- 10 Underway Replenishment Groups
- 7 Convoy Escort Groups

Our goals for deployable aircraft carriers, battleships, and nuclear attack submarines will be delayed. The aircraft carrier, USS ABRAHAM LINCOLN (CVN 72), becomes operational in 1990 at which time we will decommission the USS CORAL SEA. We expect to achieve our amphibious lift objective in the late 1990s. Our most serious deificiency is in modern Battle Force Capable combatants. Given the present fiscal constraints, the achievement of our object- ive level for these ships will be delayed until after the turn of the century.

VG-4

The actual composition of a Battle Group depends upon the threat, the task to be performed, and the availability of forces, including those of our sister services and our Allies. This viewgraph (viewgraph 4) illustrates a notional deployment for the 15 CVBGs and four BBGs under a scenario involving a global confrontation or conflict with the Soviet Union.

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*The force level goal for strategic submarines is under review. The eventual force level will depend on arms reductions agreements and other factors.

It is more important now than ever before to maintain the forward momentum of our shipbuilding program. Recent problems with overseas base rights have underscored the importance of a Fleet which can be sent any place on the globe to show the flag or project power. We must also be concerned that our shipbuilding industry is weakened and the industrial base is eroding. Our ability to rebuild a fleet in time of crisis is consiberably diminished.

VG-5

With your support, the Fleet has grown from 479 ships in FY 1980 to 565 at the beginning of this fiscal year.

VG-6

We expect to reach 563 ships by the end of 1989 as new ships already under construction replace aging, marginally capable units which are reaching the end of their useful service lives.

In 1988, we took delivery of 16 new ships and three conversions. The new ships included two OHIO Class strategic missile submarines, one of which was the first D-5 capable Ohio Class submarine, the first of the improved LOS ANGELES Class (SSN 688) nuclear attack submarine, two TICONDEROGA Class (CG 47) guided missile cruisers, one OLIVER HAZARD PERRY Class (FFG 7) guided missile frigate, two WHIDBEY ISLAND Class (LSD 41) landing ship dock, two TAO 187 Class fleet oilers, four TAGOS 1 Class ocean surveillance ships and two Oceanographic ships. The conversions included two auxiliary crane ships (TACS) and one Battleship.

VG-7

FISCAL YEAR 1990 SCN BUDGET

Our FY 1990 SCN budget includes $9.55 billion for 17 new ships and two conversions.

VG-8

The FY 1990/1991 Five Year Shipbuilding Plan has been updated to reflect Congressional action on the FY 1989 budget and revised fiscal constraints. An average of 20 new ships per year is required in the out years. This rate of construction will sustain and modernize the Fleet and pace the threat. If we do not achieve this building rate, the Fleet will shrink while becoming older and less capable against the projected threat.

The majority of the ships in this plan are force sustainers, not force builders. They will be replacing older ships which are decreasing in capability to carry out their missions in the face of the rapidly changing threat.

The principal changes from last year's shipbuilding request include:

Deletion of two TAO-187 Class Oilers in view of the Congressional decision to maximize savings by funding the rest of that class in FY-1989.

Deletion of one SSN-688 in FY 90 and two SSN-688 nuclear attack submarines in FY 91 in order to bring on the new SSN-21 sooner.

Restructure of the TAGOS 19 profile as a result of a program change to the larger and more capable TAGOS 23. A change in the profile of the AOE-6 class to space out the options to one per year.

Deletion of the FY 1990 ARS 51 funding.

I will briefly describe each program for which we are requesting funding in FY 1990.

STRATEGIC SUBMARINE FORCE

We presently have 36 strategic submarines in the force, including 27 submarines of the LAFAYETTE, JAMES MADISON, and BENJAMIN FRANKLIN Classes, eight TRIDENT I (C-4) and one TRIDENT II (D-5) configured OHIO Class submarines. Twelve ships of the earlier classes have been converted to carry the TRIDENT I missile.

The goal of the U.S. strategic offensive forces (the TRIAD) is to deter the Soviet Union from committing aggression. This is best assured by having strategic forces which are reliable, responsive, and have sustained survivability. The submarine launched ballistic missile (SLBM) is the only strategic system possessing all of these elements and therefore it serves as the keystone to our national strategic posture. The 100 percent survivability of the SSBN under all conditions of war inititation promotes crisis stability and their endurance provides for escalation control.

On a day-to-day basis, our strategic submarines, with their SLBM's, provide the most economical and single greatest deterrent to nuclear war. These submarines carry almost fifty percent of the strategic warheads in our country's inventory for only about twenty-five percent of the Department of Defense strategic budget.

VG-10

OHIO Class TRIDENT Submarine

The TRIDENT submarine's overall capability and firepower is unmatched. Of the sixteen OHIO Class TRIDENT submarines authorized, eight are making routine patrols from their Bangor, Washington submarine base. They have completed over one hundred deterrent patrols.

The TENNESSEE (SSBN 734) is the first TRIDENT II (D-5) missile capable submarine. TENNESSEE was delivered six weeks early and is currently supporting TRIDENT II (D-5) missile testing. Seven TRIDENT submarines are presently under construction. We continue to support the President's strategic modernization plan by building at least one TRIDENT SSBN each year. All pre OHIO Class SSBNs will be retired in the 1990s. It is vital to maintain a minimum building rate of one TRIDENT per year to continue a credible, fully survivable SSBN force at sea into the next century. In the FY 90 budget we are requesting $1,137.2 million for the seventeenth ship plus $140.6 million for long lead material for the FY 92 ship.

ATTACK SUBMARINE FORCE

The Soviet Union has long had the largest attack submarine force in the world. The Soviet submarines are being built at a rate which is more than double that of the U.S. Moreover, the overall quality of this force is improving rapidly, as quieter and more powerful new classes are introduced in large numbers. Four new classes have achieved initial operational capability in the past six years.

Countering this formidable threat is the primary mission of our attack submarines. There are currently three conventional and 97 nuclear attack submarines in the Force. Of these, 40 are LOS ANGELES (SSN 688) Class submarines.

VG-11

LOS ANGELES (SSN 688) Class Submarine

Having incorporated the vertical launch tube cruise missile capability into eight of the first forty SSN-688s we made further major improvements leading to the first of the "Improved SSN-688s" commissioning in June of 1988. That first 688I, the USS SAN JUAN (SSN-751), is fully Arctic capable and has the new AN/BSY-1 combat system. The BSY-1 provides significant improvements in acoustics and weapons capabilities over any submarine combat system at sea today -- There are 21 similarly configured Improved SSN-688s currently under construction. The improved 688s which we have in production and propose to build are absolutely vital to our undersea superiority in the 1990s against the Soviet threat.

However, we have exhausted the potential for further significant improvement to the SSN 688 design.

The FY 1990 budget includes $806.3 million to fully fund the final improved SSN 688 Class submarine.

These ships incorporate the Vertical Launch System (VLS) for TOMAHAWK, enhanced arctic capabilities, advanced combat system, and improved sensor and propulsion systems.

VG-12

SEAWOLF (SSN 21) Class Submarine

The FY 1990 budget requests $816.8 million in advance procurement for the long leadtime nuclear propulsion plant and hull, mechanical and electrical equipment for follow on submarines of the SEAWOLF class. This new class has been designed to counter the rapidly increasing capabilities of the Soviet submarine force projected for the 1990s and beyond. It is quieter, faster and more heavily armed than any of our previous submarines and will possess increased arctic warfare capability. It will be ideally suited to deploy to forward ocean areas to search out and destroy enemy submarines and surface ships and to attack land targets.

Repeated, objective and independent analyses have concluded that SEAWOLF and her sister ships will have three times the mission effectiveness of the Improved SSN-688 and will restore the commanding technological and tactical margin which historically we have enjoyed over the Soviets. There are no near-term prospects for submarine capability superior to SSN-21.

AIRCRAFT CARRIERS

Our aircraft carriers are deployed worldwide in support of our national commitments. They are capable of executing response options ranging from peacetime presence through general war. Together with their embarked air wings, the carriers have vital roles in strike, anti-surface, anti-air, and anti-submarine warfare.

In FY 88, the Congress appropriated full funding for two NIMITZ Class nuclear aircraft carriers, CVN 74 and CVN 75. Two other CVNs approved in FY 1983 are in building at Newport News Shipbuilding and Drydock Company. The first of these, USS ABRAHAM LINCOLN (CVN 72), joins the Fleet in 1990. CVN 73, 74, and 75 will replace conventionally powered carriers as they retire in the 1990s.

USS KITTY HAWK (CV 63) is one third of the way toward completing her SLEP at Philadelphia Naval Shipyard. This program will add 15 years to the service lives of selected conventional carriers.

VG-13

CARRIER SERVICE LIFE EXTENSION PROGRAM (CV SLEP)

The FY 1990 budget includes $651.2 million for the USS CONSTELLATION (CV 64) slep scheduled to commence in FY 1990.

SURFACE COMBATANTS

We have made great strides in the past few years in improving the quality of our surface combatants, although fiscal constraints have precluded solving our numerical shortfalls. The AEGIS Combat System and Vertical Launch System (VLS) have revolutionized the Battle Group. The combination of HARPOON and TOMAHAWK has expanded the roles of our surface combatants, complicated enemy targeting, and significantly increased the Navy's offensive power. The surface force level objectives I spoke of last year were: four reactivated battleships, 100 Battle Force AAW Combatants, 37 destroyers, and 101 frigates. The Surface Combatant Force Requirement Study completed last year and approved by the CNO, now defines the force level objective as: 120 Battle Force Capable (BFC) ships and 104 Protection of Shipping (POS) units for a total of 224 highly capable and multi-purpose ships. Battle Force Capable (BFC) ships represent our greatest shortfall.

VG-14

ARLEIGH BURKE (DDG 51) CLASS GUIDED MISSILE DESTROYERS

The lead ship of the ARLEIGH BURKE Class guided missile destroyer (DDG 51) was funded as a FY 1985 ship, and there are presently eight of these ships appropriated and under contract. The DDG 51 class replaces the aging DDG 2 and DDG 37 class destroyers which are becoming obsolete and will be retired in the 1990s. As the DDG 51 program continues, we will build additional destroyers to replace our older cruisers and to attain our Battle Force Capable (BFC) force level objectives.

The DDG 51 will be the most powerful class of destroyers ever to go to sea. It will carry the AEGIS Combat System, the SQQ 89 ASW system, VLS, TOMAHAWK, HARPOON, and STANDARD (SM-2) missiles as well as a 5"/54 caliber Lightweight Gun, the Close-in Weapon System (CIWS), and anti-submarine weapons.

Extensive topside armor placed around vital command, electronic and machinery spaces provides enhanced survivability. There is improved and redundant fire-fighting equipment to allow the ship to better withstand and repair battle damage. Acoustic, infrared and radar signatures are substantially reduced which, in combination with sophisticated electronic equipment, make the DDG 51 very difficult to detect, identify and target. State-of-the-art protective systems protect against nuclear, biological and chemical agents. Hardening systems also provide excellent protection against nuclear and thermal blast. In addition, the overall hull design will provide superior sea-keeping, mobility, speed and stability which will significantly improve operational performance in higher sea states. Internally, the ship's design allows for more efficient use of manpower and requires fewer sailors than are normally assigned to a ship of this size and capability.

The FY 1990 budget includes $3,600.7 million full funding for five DDG 51s. Eventually we desire to increase this rate to six ships per year in order to meet our requirements and to provide for optimum competition. A total of 24 DDG 51 class ships are included in the FYDP, which will bring the total inventory to 32 ships.

AMPHIBIOUS WARFARE SHIPS

Amphibious Warfare was developed and perfected by your Navy and Marine Corps prior to and during World War II, employing forces uniquely fashioned for forcible entry. There is nothing defensive about Amphibious Warfare.

In developing plans to expand the Navy and revitalize our maritime strength, we concluded that we had to increase our amphibious lift and correct deficiencies in systems and equipment which support amphibious operations. Our initiatives are designed to achieve a balance in tactical air, naval surface fire support, amphibious forces, CH-53E helicopters, assault craft, sealift, prepositioning, cargo handling and off-loading equipment and increases in ordnance and supplies.

The primary factors in determining the Amphibious Force level and ship design are the Marine Corps lift requirement and the ship to shore assets required to execute the landings. Our stated goal is to lift the Assault Echelons of both a Marine Expeditionary Force (MEF) and a Marine Expeditionary Brigade (MEB). The Assault Echelon (AE) includes the most critical assault elements needed to seize a beachhead and rapidly build up combat power ashore. These elements must be transported, landed and supported from specialized amphibious ships. The remainder of the landing force makes up the Assault Follow-on Echelon (AFOE), comprised of the troops, equipment and supplies needed to support and sustain the initial assault. These follow on landing force elements are embarked in Military Sealift Command (MSC) controlled fleet ships, which may be government owned and chartered or requisitioned from the private sector.

VG 15

LSD 41 (Cargo Variant) Dock Landing Ship

Last year two WHIDBEY ISLAND dock landing ships were delivered. Eight ships of this class are in building and the first of the Cargo Variant was funded in 1988. This year we are requesting $229.3 million to fund the second LSD 41 (Cargo Variant). This ship will transport and launch amphibious craft and vehicles with their crews and embarked personnel in amphibious assault operations. It will also provide limited docking and repair services for conventional landing craft and LCAC. The ship will differ from the original LSD 41 in that it will have additional cargo capacity and two fewer LCAC.

VG-16

Landing Craft Air Cushion (LCAC)

The FY 1990 budget includes $196.3 million for nine craft and $22.9 million for advance procurement in support of the FY 1991 program (12 craft). We plan to build 12 craft in FY 1991 and 9 in FY 1992.

The LCAC is a fully amphibious air cushion vehicle capable of operating from existing and planned well deck ships. It transports weapons systems, equipment, cargo, and personnel of the assault elements of the Marine Air/Ground Task Force both from ship to shore and across the beach.

MINE WARFARE SHIPS

The Soviet Union possesses the world's largest offensive mining capability. In the event of war, mines could be employed to deny use of harbors, straits and coastal waters, thereby jeopardizing the importation of strategic materials and the reinforcement and resupply of U.S. and allied forces in Europe and Asia. The laying of mines in the Persian Gulf by the Government of Iran was a recent example of how a modest mining effort can threaten to strangle vital shipping lanes.

For many years, our mine countermeasures capability was inadequate to meet the threat. Our oceangoing minesweepers are approaching obsolescence and are increasingly difficult and expensive to maintain. We have established a minimum objective of 31 new mine countermeasures units which, in conjunction with our MCM helicopters, will have the mission of clearing U.S. waters and strategic choke points in time of war. The MHC 51 is a new class of ships designed to perform reconnaissance, classification, and neutralization of moored and bottom mines in our harbors and coastal waters.

VG-17

MHC 51 Class Coastal Mine Hunter

The lead ship of the MHC 51 Class was funded as an FY 1986 ship. Two follow ships were funded in FY 1989, and one of these will be awarded to a competitively selected second builder later this year. Fiscal constraints have prevented us from increasing our MHC production rate in this vital warfare area. The FY 1990 budget request contains $120.3 million for the next follow on unit. A total of 14 MHC 51 Class ships are included in the five year plan.

COMBAT LOGISTICS FORCES

The expanding Fleet requires additional combat logistics forces. In addition, recent concerns over availability of overseas bases have underscored our dependence on these ships to keep our battle forces operating. Combat logistics force ships include multi-product station ships with the speed and armament to remain with the Carrier Battle Groups and single product shuttle ships to carry fuel, ordnance, stores and provisions from advance logistic bases or consolidation points at sea. The primary station ship is the AOE fast combat support ship. Shuttle ships include fleet oilers (AOs/TAOs), ammunition ships (AEs/TAEs), and stores ships (AFS/TAFS). In the event of non-availability of an AOE, one AOR and one AE may be assigned to a Battle Group.

VG-18

AOE 6 Class Fast Combat Support Ship

In FY 1987 the Congress appropriated the funds for the lead ship of the AOE 6 Class. We plan to procure a total of 11 ships of this class to meet and sustain our objective level of 15 station ships.

The FY 1990 budget includes $356.4 million for one of these ships and another is planned for a FY 1991 start.

VG-19

CIMARRON (AO 177) Class Fleet Oiler Jumboization

The Congress has approved the jumboization of four of the five AO 177 Class Fleet oilers to date. The AO JUMBO conversion program is designed to increase the fuel capacity of these ships by up to 50 percent. The FY 1990 budget includes $35.7 million to convert the fifth and final ship of the class.

VG-20

TAGOS OCEAN SURVEILLANCE SHIPS

We plan to build a total of 28 TAGOS ocean surveillance ships. The first 22 ships have been appropriated. Eighteen of these are conventional monohulls and four are Small Waterplane Area Twin Hull (SWATH).

In FY 1990 we are requesting $155.8 million for a new and larger SWATH ship, T-AGOS 23 (SWATH A), which will have excellent sea keeping performance and significantly improved acoustic capabilities.

These ships will operate as units of the Military Sealift Command to collect, process, and transmit acoustic data. The SWATH configuration will improve our capability to operate in high latitudes under adverse winter weather conditions.

VG-21

OCEANOGRAPHIC SHIPS

We are continuing to address the block obsolescence of our 1960-vintage oceanographic ships. The T-AGS ships requested in the FY 90 SCN Program will replace ships that have exceeded their effective service life and are technologically inadequate for modern complex oceanographic operations. The replacement ships will be multi-mission capable -- performing ocean survey and data collection in support of fleet operations and systems development. The FY 1990 request includes $278.1 million for construction of three TAGS oceanographic vessels.

OUTFITTING/POST DELIVERY

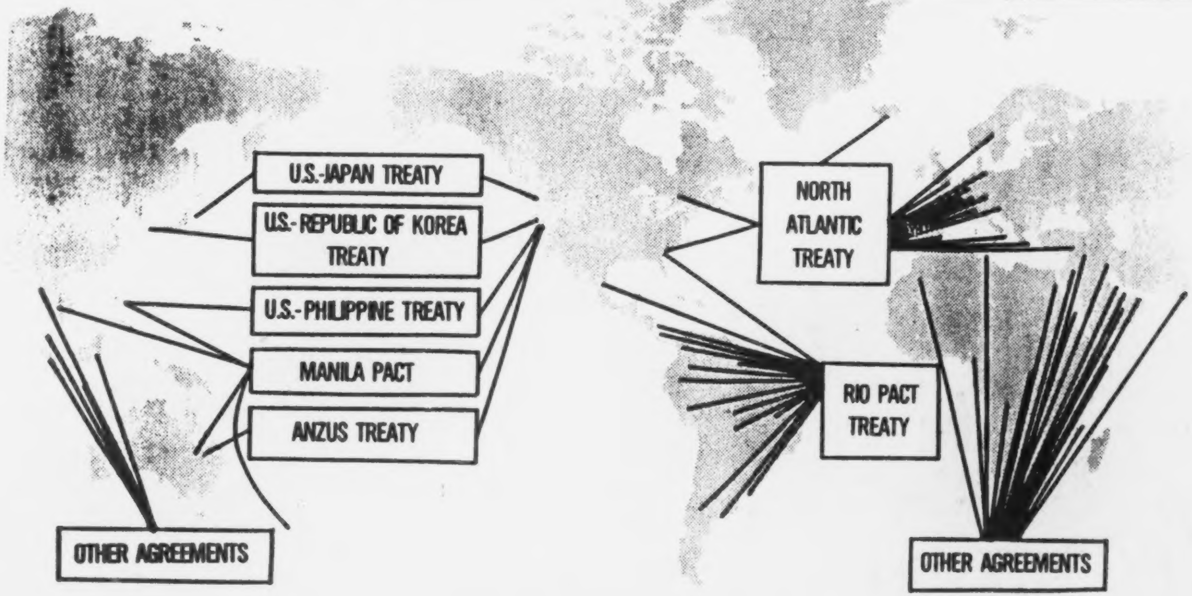
We are requesting $205.5 million in FY 1990 for outfitting. Outfitting funds purchase repair parts and consumables to fill initial ship allowances for ships approaching delivery.

The FY 1990 budget includes $134.5 million for post delivery. Post delivery funds are used to pay for all work required to correct deficiencies identified during trials or post delivery.

Mr. Chairman, that concludes my overview of the FY 1990 SCN Budget Request and update of the Five Year Shipbuilding Plan. I appreciate this opportunity to appear before your committee to assist you in your deliberations on the Defense Appropriation Bill and urge your continued strong support for our shipbuilding program.

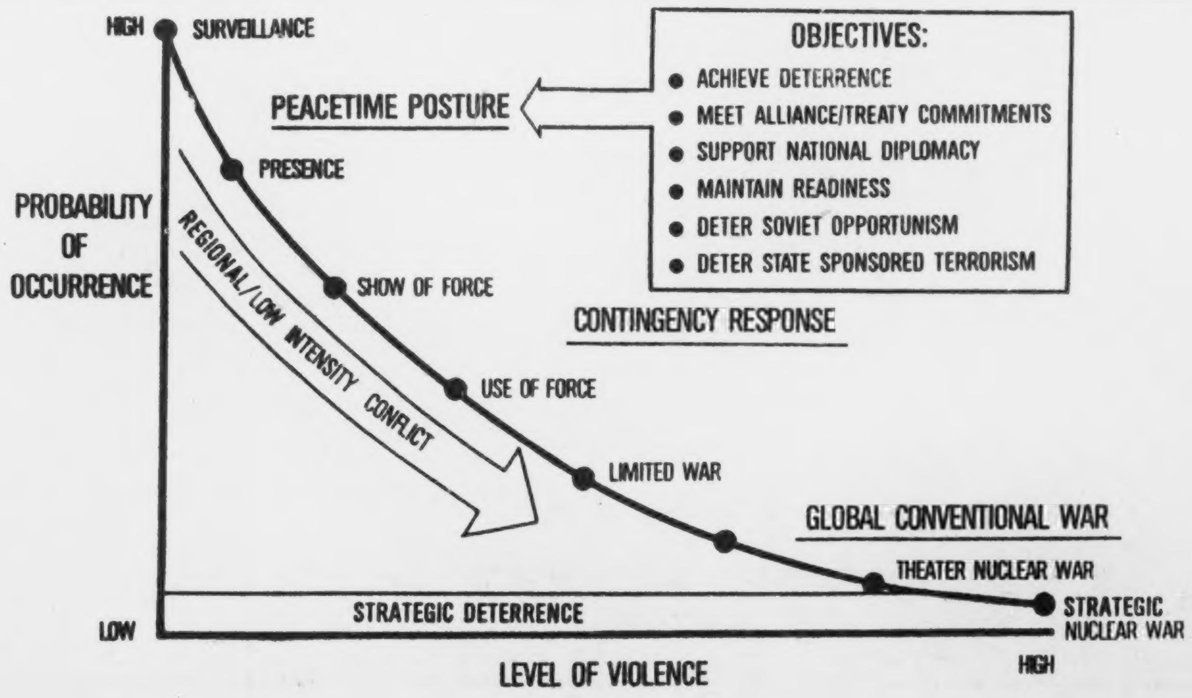
VG-1

ALLIANCES, TREATIES AND AGREEMENTS


U.S.-JAPAN TREATY
U.S.-REPUBLIC OF KOREA TREATY
U.S.-PHILIPPINE TREATY
MANILA PACT
ANZUS TREATY
OTHER AGREEMENTS
NORTH ATLANTIC TREATY
RIO PACT TREATY
OTHER AGREEMENTS

FORMAL ALLIANCES AND TREATIES WITH 43 COUNTRIES
MANY OTHER SIGNIFICANT BILATERAL AGREEMENTS

APPLICATIONS OF MARITIME POWER

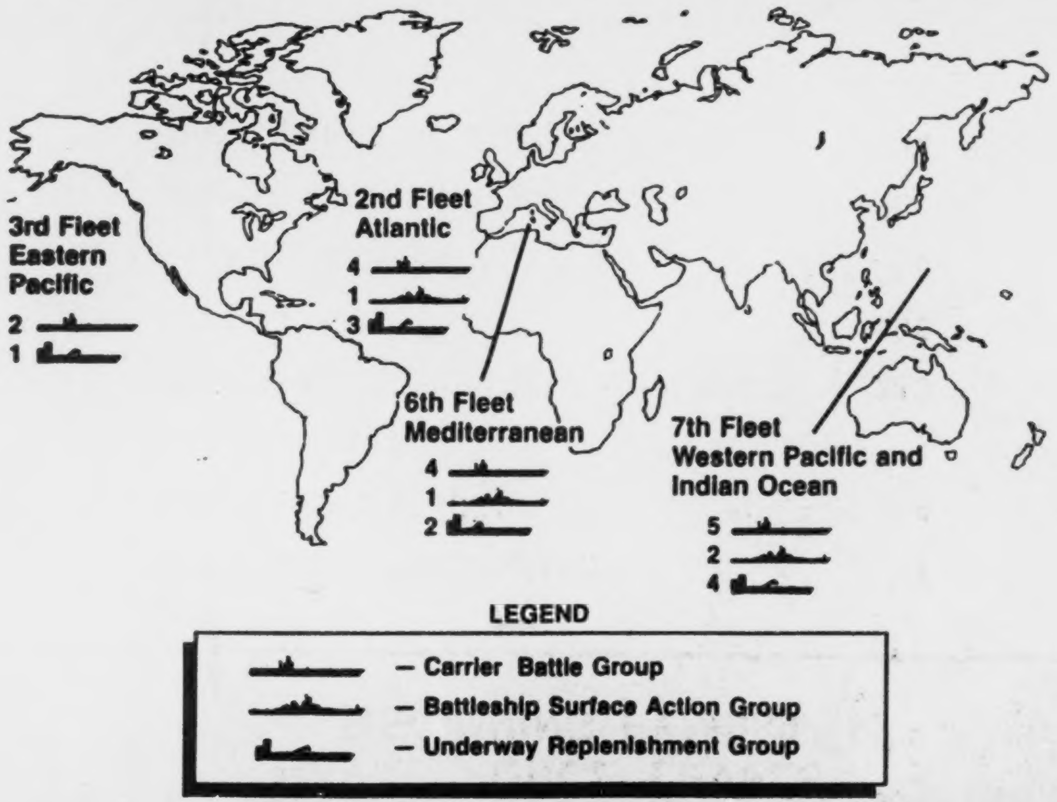


VG-2

THE NAVY'S FORCE STRUCTURE GOALS

- 20-40 BALLISTIC MISSILE SUBMARINES
- 15 CARRIER BATTLE GROUPS
- 4 BATTLESHIP BATTLE GROUPS
- 100 ATTACK SUBMARINES
- MEF-PLUS-MEB ASSAULT ECHELON LIFT
- 14 MINE COUNTERMEASURES SHIPS
- 10 UNDERWAY REPLENISHMENT GROUPS
- 7 CONVOY ESCORT GROUPS

WARTIME DISPOSITION OF U.S. NAVAL FLEETS


3rd Fleet
Eastern
Pacific
2
1
2nd Fleet
Atlantic
4
1
3
6th Fleet
Mediterranean
4
1
2
7th Fleet
Western Pacific and
Indian Ocean
5
2
4
LEGEND
– Carrier Battle Group
– Battleship Surface Action Group
– Underway Replenishment Group

VG-4

NAVAL FORCE LEVELS BEGINNING FY 1989

STRATEGIC SUBMARINES	37
AIRCRAFT CARRIERS	14
BATTLESHIPS	4
PRINCIPAL SURFACE COMBATANTS	213
ATTACK SUBMARINES	100
PATROL COMBATANTS	6
AMPHIBIOUS WARFARE SHIPS	63
MINE WARFARE SHIPS	4
COMBAT LOGISTIC SHIPS	58
MOBILE LOGISTICS/SUPPORT SHIPS	66
TOTAL	565

VG-5

NAVAL FORCE LEVELS
END FY 1989

STRATEGIC SUBMARINES	36
AIRCRAFT CARRIERS	14
BATTLESHIPS	4
PRINCIPAL SURFACE COMBATANTS	208
ATTACK SUBMARINES	100
PATROL COMBATANTS	6
AMPHIBIOUS WARFARE SHIPS	66
MINE WARFARE SHIPS	3
COMBAT LOGISTIC SHIPS	60
MOBILE LOGISTICS/SUPPORT SHIPS	71
TOTAL	568

VG-6

FY 90 SHIPBUILDING AND CONVERSION, NAVY (SCN) BUDGET REQUEST ($ IN MILLIONS)

PROGRAM	QTY	FULL FUNDING	ADV PROC	TOA
TRIDENT	1	1137.2	140.6	1277.8
SSN 688	1	806.3		806.3
SSN 21	--		816.8	816.8
DDG 51	5	3600.7		3600.7
LHD 1	--	35.0		35.0
LSD 41 (CV)	1	229.3		229.3
MCM	3	341.5		341.5
MHC	1	120.3		120.3
TAGOS	1	155.8		155.8
AOE 6	1	356.4		356.4
AGOR/TAGS	3	278.1		278.1
LCAC	(9)	219.3		219.3
CV SLEP	1	630.3	20.9	651.2
AO (JUMBO)	1	35.7		35.7
MTS	(1)	220.0		220.0
SERVICE CRAFT		45.1		45.1
LANDING CRAFT	10	11.3		11.3
OUTFITTING		205.5		205.5
POST DELIVERY		134.5		134.5
SPEC SUP EQUIP		10.0		10.0
TOTAL	17/2			9550.6

FY 1990/94 SHIPBUILDING PROGRAM

	BUDGET REQUEST		SUBJECT TO FURTHER REVIEW		
	90 QTY	91 QTY	92 QTY	93 QTY	94 QTY
TRIDENT	1	1	1	1	1
SSN 688	1				
SSN 21		2	3	3	3
DDG 51	5	5	5	5	4
LHD 1		1		1	
LSD 41 (CV)	1	1	1	1	1
MCM	3				
MHC	1	3	4	4	2
AGOS			1		2
TAGOS	1		2	1	2
AE				1	2
AOE 6	1	1	1	1	1
AR					1
ARS					1
AGOR/TAGS	3	1	2	2	1
LCAC	(9)	(12)	(9)	(9)	(9)
LANDING CRAFT	(10)	(10)		(1)	(6)
NEW CONST.	17	15	20	20	21
CV SLEP	1			1	
AO (JUMBO)	1				
MTS	(1)		(1)		
CONVERSIONS	2	0	0	1	0

FORCE SUSTAINERS

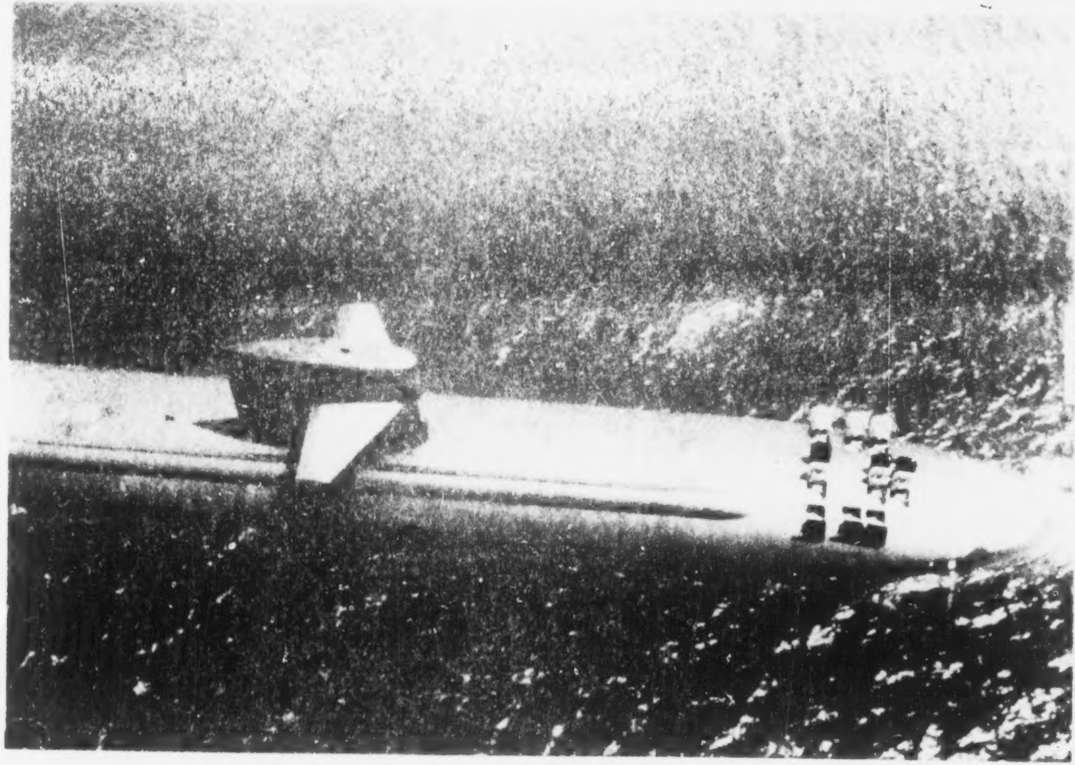
CLASS	NO. IN FYDP
TRIDENT	5
SSN 688	1
SSN 21	11
DDG 51	24
AO JUMBO	1
AE 36	3
AOE 6	5

VG-9

TRIDENT SUBMARINE - SSBN

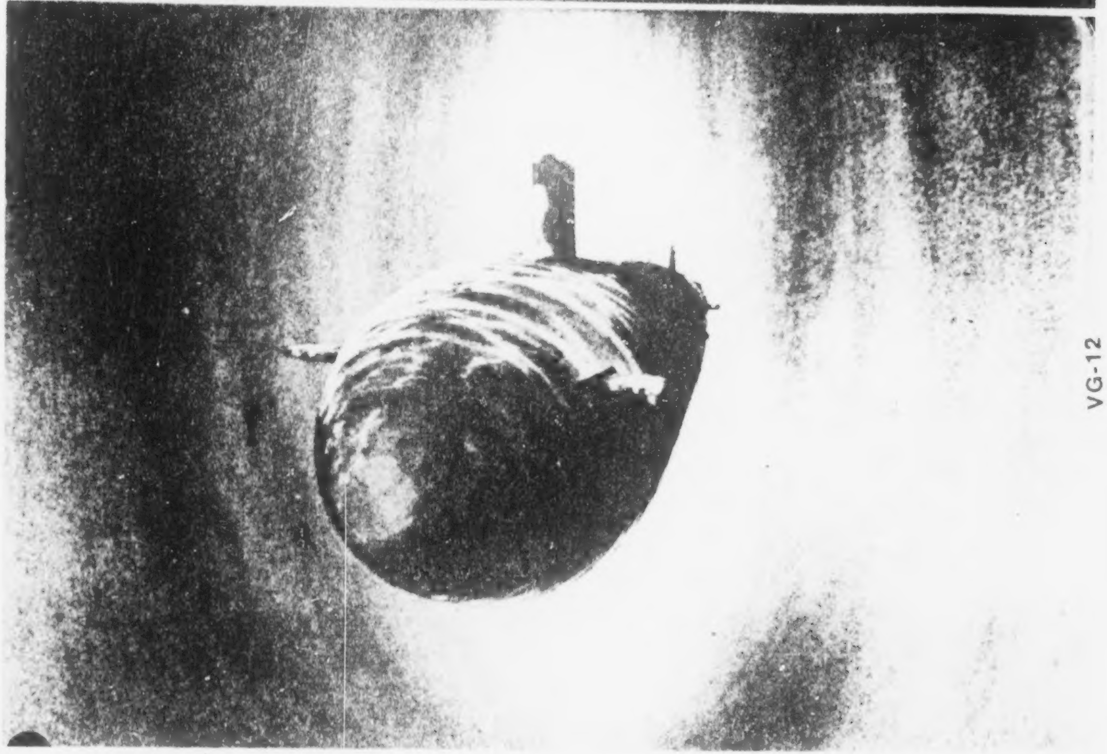
VG-10

NUCLEAR ATTACK SUBMARINE · SSN 688



VG-11

NUCLEAR ATTACK SUBMARINE - SSN 21

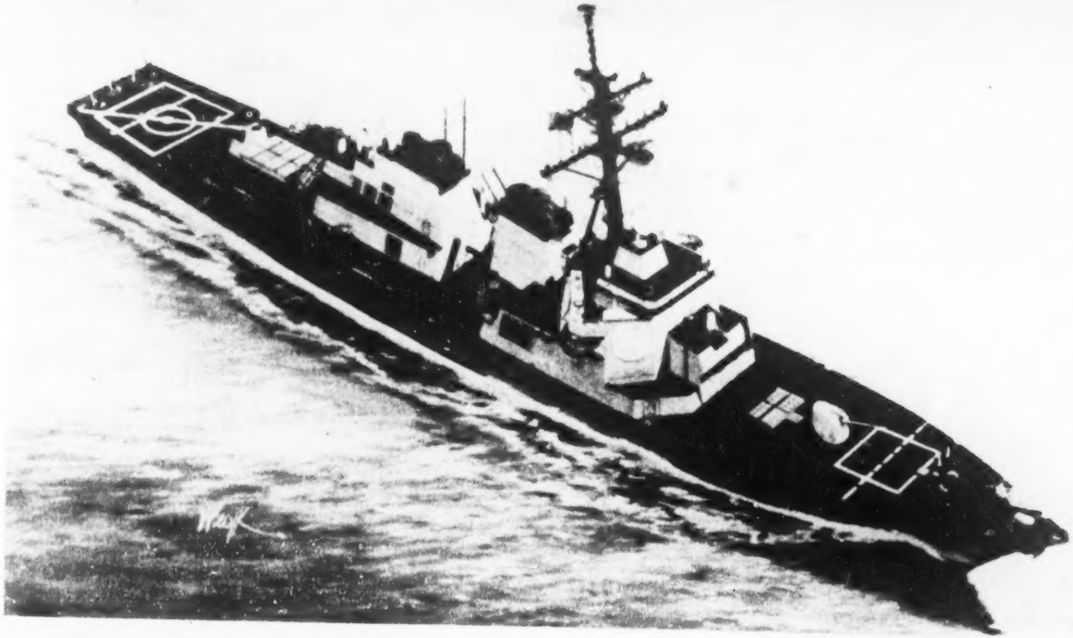


VG-12

AIRCRAFT CARRIER
SERVICE LIFE EXTENSION PROGRAM-CV SLEP

VG-13

GUIDED MISSILE DESTROYER — DDG 51

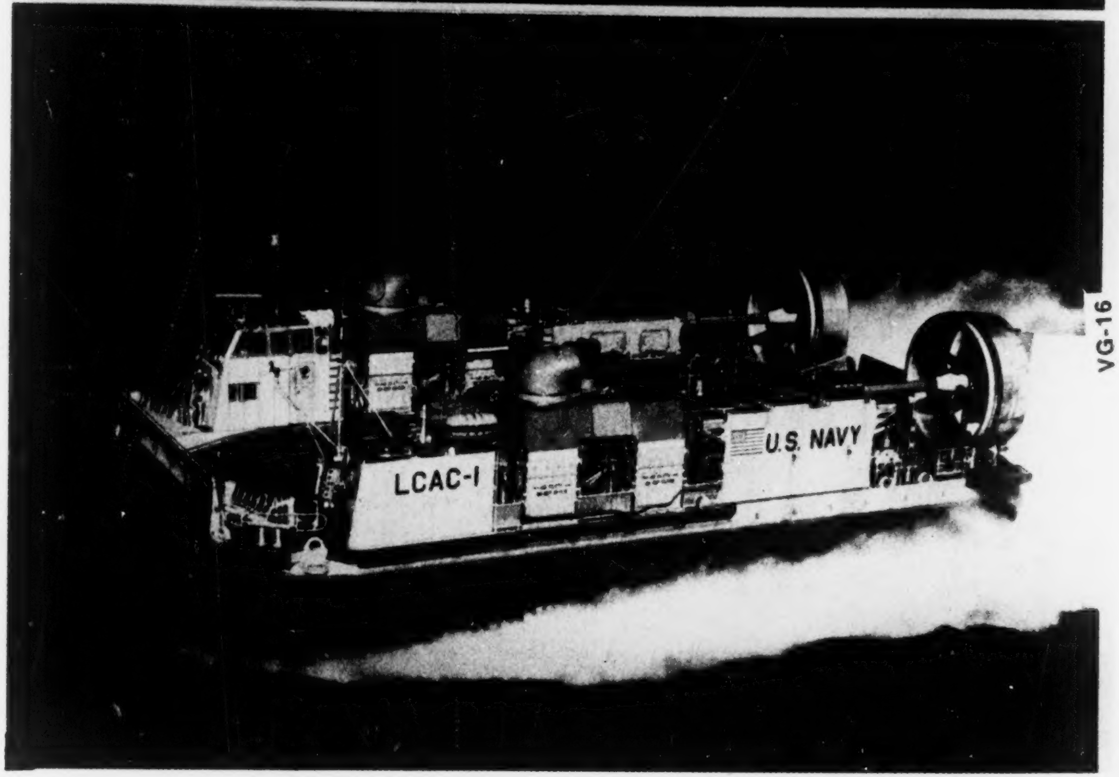


VG-14

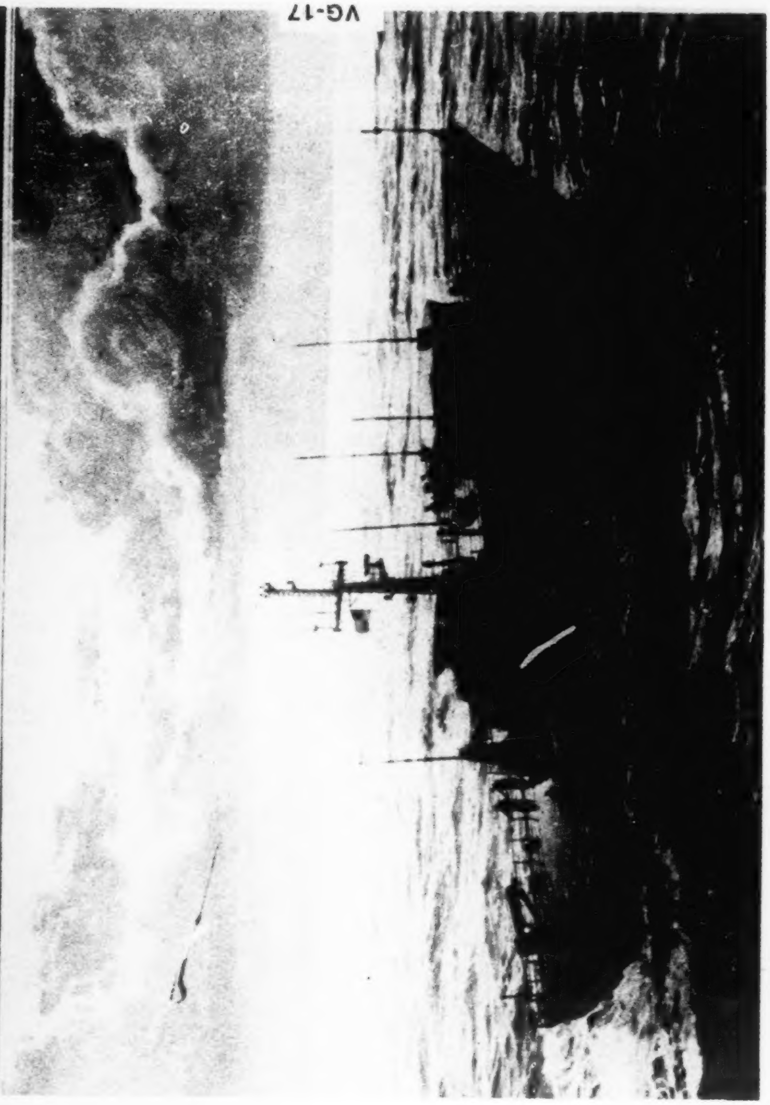
DOCK LANDING SHIP — LSD 41 (CV)

VG-15

LANDING CRAFT AIR CUSHION (LCAC)


LCAC-I
U.S. NAVY

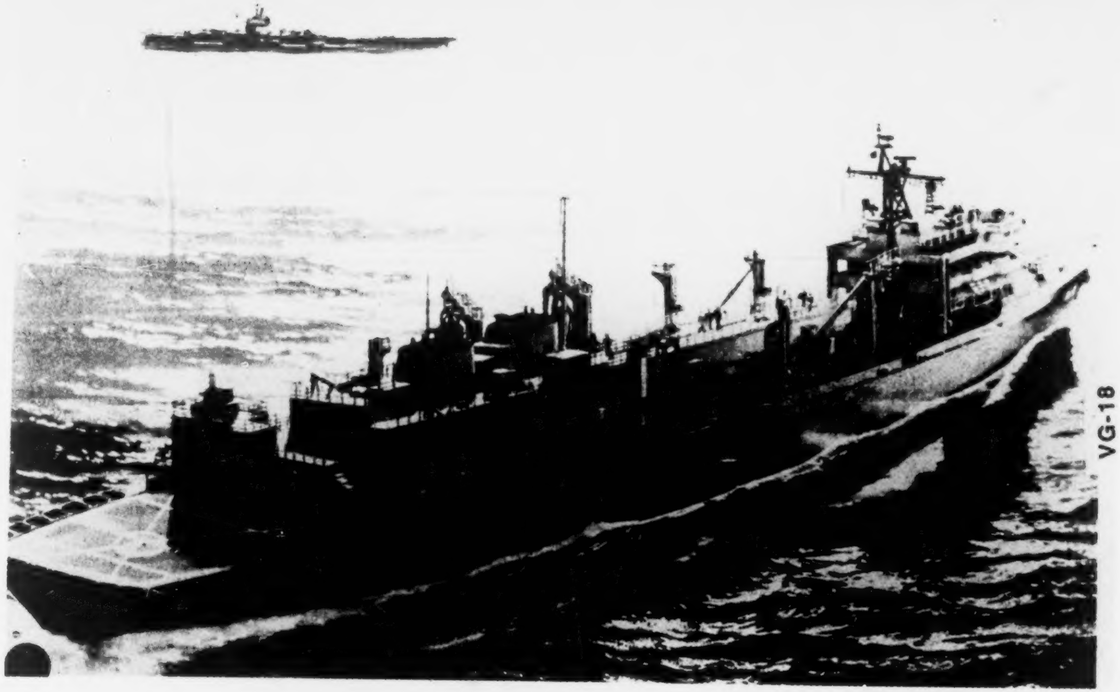
VG-16



COASTAL MINE HUNTER — MHC 57 CLASS

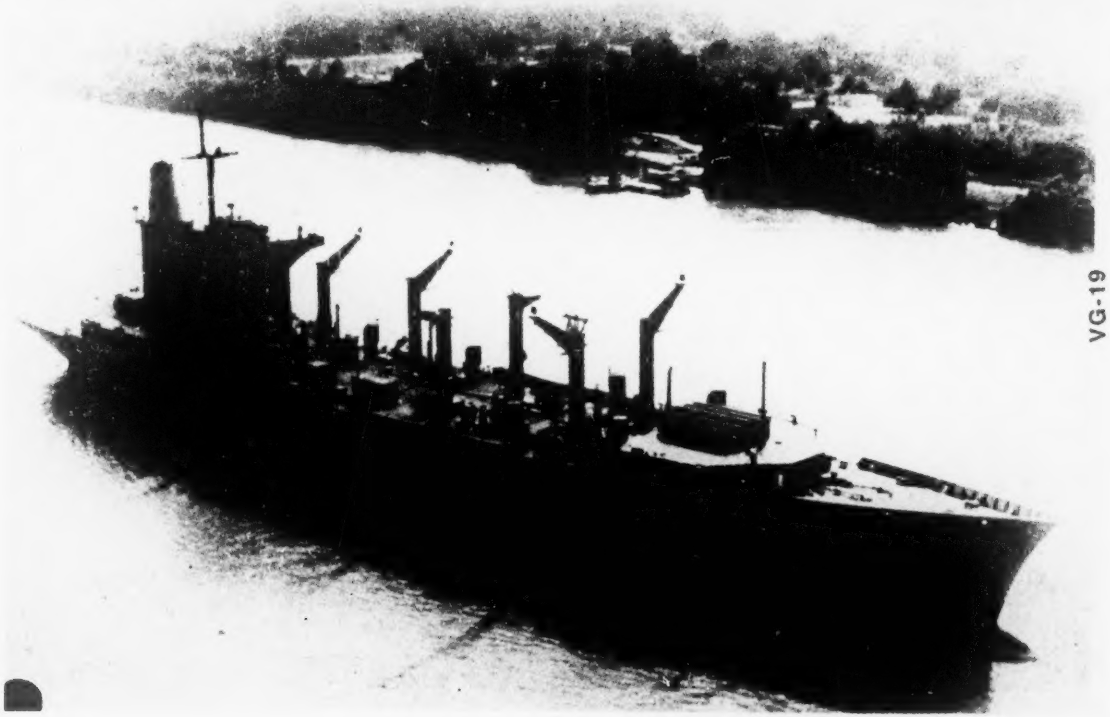
VG-17

FAST COMBAT SUPPORT SHIP-AOE 6

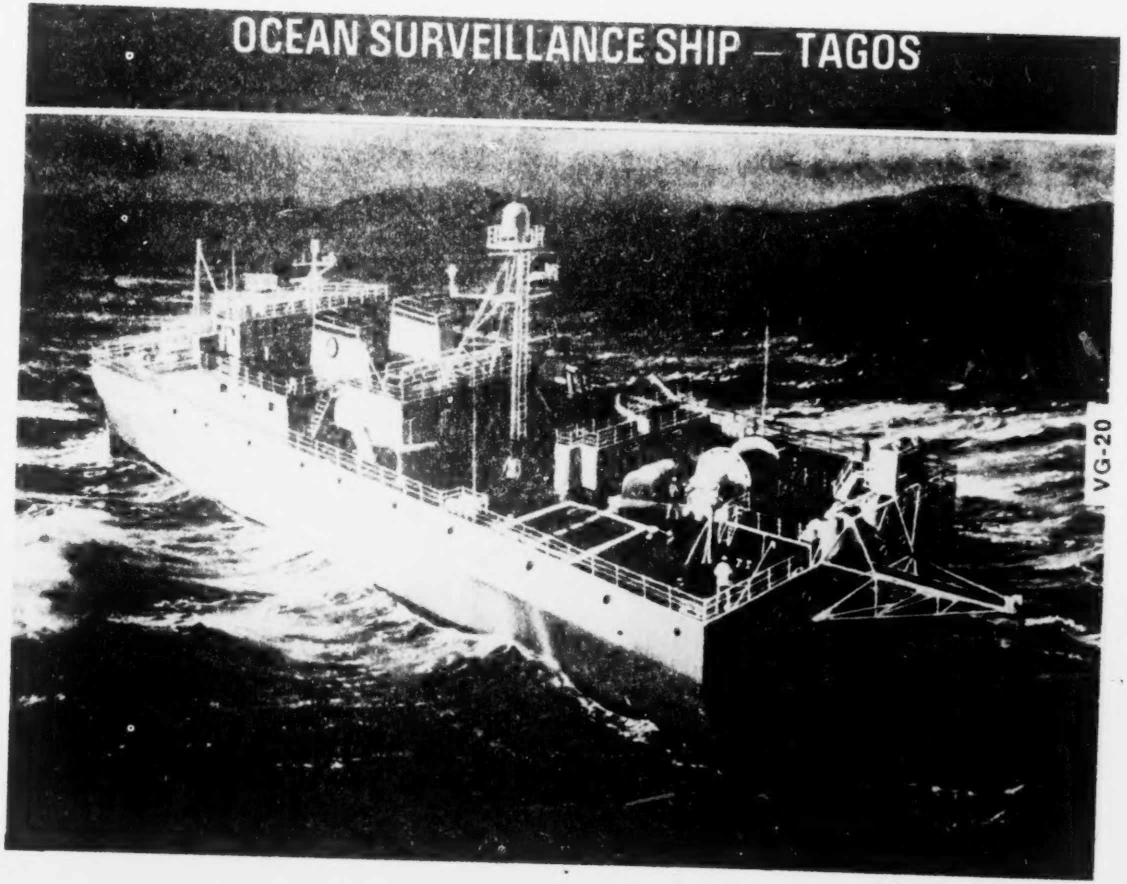


VG-18

FLEET OILER JUMBOIZATION - AO 177

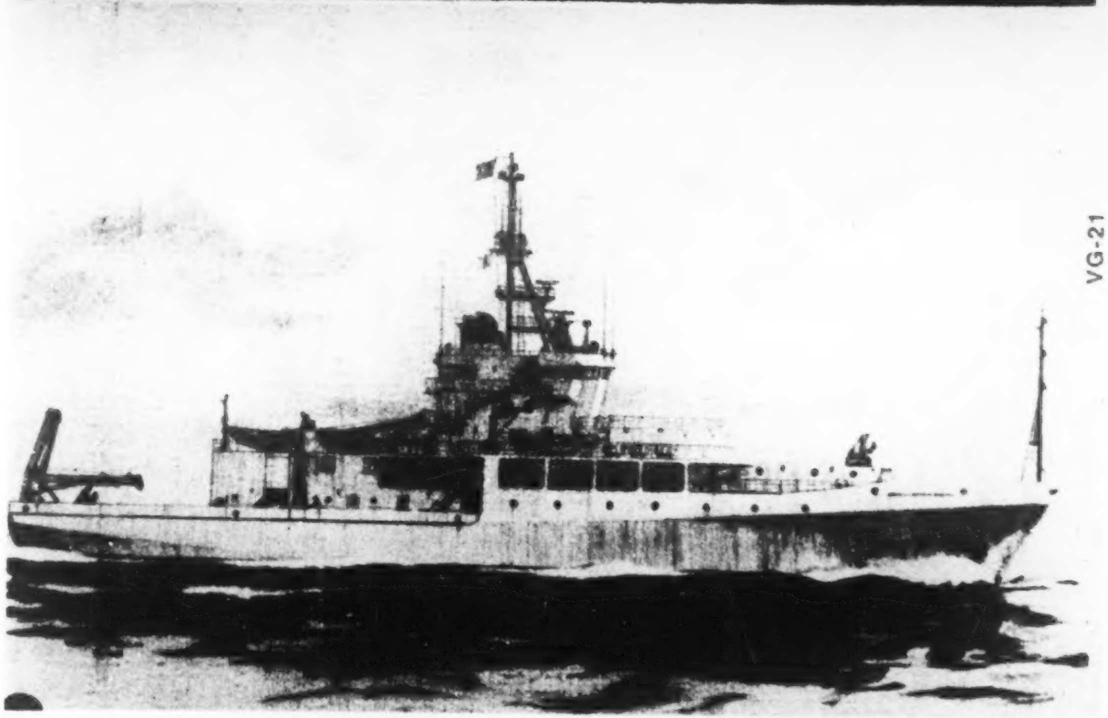


VG-19



OCEAN SURVEILLANCE SHIP — TAGOS

OCEANOGRAPHIC SHIPS



VG-21

Mr. **Murtha**. Admiral Hekman.

SUMMARY STATEMENT OF ADMIRAL HEKMAN

Admiral **Hekman**. I don't have a statement other than to say that I appreciate the opportunity to appear before this committee. This is my first opportunity since assuming command of the Naval Sea Systems Command, and I endorse the comments that Admiral Nyquist and Secretary Pyatt have made, particularly with respect to the team work that has developed in the past administration and continues to this day in the shipbuilding and weapons procurement area. It is excellent.

Thank you, sir.

[The biographical sketch of Admiral Hekman follows:]

VICE ADM. PETER M. HEKMAN, JR., USN

Vice Admiral Peter M. Hekman assumed Command of the Naval Sea Systems Command on September 1, 1988. A native of Ripon, California, he is a 1958 graduate of the U.S. Naval Academy and a 1970 graduate of the Naval Postgraduate School where he was awarded a Master of Science in Management degree.

Vice Admiral Hekman's early service was in Pacific Fleet destroyers, among them USS AGERHOLM (DD 826), USS AMMEN (DD 527), USS COGSWELL (DD 651), and USS HOEL (DDG 13). Following Naval Nuclear Power Program training in 1964, he returned to see in 1966 as Executive Officer of USS PRESTON (DD 795), then received his first command, USS CHARLES BERRY (DE 1035). He then served from 1971 through 1974 as Engineer Officer of USS ENTERPRISE (CVN 65). He commanded USS BENJAMIN STODDERT (DDG 22) and was the first Commanding Officer of USS MISSISSIPPI (CGN 40).

Following promotion to flag rank in 1982, Vice Admiral Hekman's assignments include: Deputy Director for Operations, National Military Command Center, Office of the Joint Chiefs of Staff; Commander, Cruiser-Destroyer Group ONE; Commander, Task Force SEVENTY-FIVE; Deputy Director, Office of Research, Development, Test and Evaluation, Office of the Chief of Naval Operations; and Deputy Commander for Surface Combatants, Naval Sea Systems Command.

USS ROBERTS

Mr. **Murtha**. Mr. Secretary, you did an excellent job with the USS *Roberts*. You saved the ship. The training plus a good ship was the reason it didn't sink, and we didn't have a tremendous loss of life in a shark-infested area and mine-infested area where rescue ships might have had a hard time getting in.

We are not cutting out any training money for the people that are on the ships with this tightened-down budget?

Mr. **Pyatt**. I understand we are not. You said "you did," and it is really "we." A lot of folks in the Navy worked on that all the way through, and the ship is coming out ahead of schedule, as far as repairs go, and below my first estimate.

Admiral Nyquist may wish to add some more about training.

Admiral **Nyquist**. We are continuing the training for the people that go to those ships at the same level that we have. We feel, and the CNO has stated it many times, that people come first and the training of those people is at the top of our priority list.

USS IOWA EXPLOSION

Mr. **Murtha**. I went to the memorial service for USS *Iowa* and it was a touching, appropriate service. It certainly brought home to me the danger to the people who serve in these ships.

We have heard a lot of rumors about the damage that was done, that the ship couldn't be repaired, and the estimates of what it would cost to repair it.

Do we have an estimate of the cost to repair?

Mr. **Pyatt**. I have seen some of the stuff in the press and I think it is wrong. From what I have heard so far, damage to the ship is minimal and we were able to get the turret to turn already.

Admiral Hekman's people have been through our parts supply and we have what we need to fix the ship up. Suggestions that people have made to retire the ship are totally off-base. That ship proves to me that our forefathers built the ships to withstand a beating, and it sure did.

Mr. **Murtha**. What is your estimate before the committee? What do you figure it is going to cost to repair it?

Mr. **Pyatt**. A wild guess, off the wall, $15 million.

Admiral Nyquist, do you wish to add anything?

Admiral **Nyquist**. On the operational side, Mr. Chairman, as you know the CNO has said if we never repaired the turret, the ship would still be irreplaceable. The battleship with her 16-inch guns and the Tomahawk and Harpoon is an asset we can't afford to give up.

I agree the turret is repairable at a reasonable cost and a reasonable amount of time.

Mr. **Murtha**. Can you tell us anything about the investigation at this point?

Admiral **Nyquist**. Admiral Milligan has completed the immediate, on-scene part of the investigation. He is now continuing his interviews, and has moved off the ship and is starting to write up the investigation.

But as to a conclusion, Mr. Chairman, there has not been one reached, and I would not want to go any further than that. He is still working on it, sir.

Mr. **Murtha**. Is there any relationship between the reported misfire in number one turret and what happened in number two turret?

Admiral **Nyquist**. No, sir. They are totally unrelated events.

Mr. **Murtha**. Misfires are common occurrences?

Admiral **Nyquist**. Not common, but they do occur, and they are not looked upon as extraordinary.

COST OVERRUNS

Mr. **Murtha**. Mr. Secretary, we have had some cost overruns recently. Some of the latest estimates we are getting, the cost increases on 19 contracts cited in the initial General Accounting Office report to this committee in October of 1987, showed increases for 19 contracts projected at over $1.4 billion. The cost increases on these 19 contracts had escalated to $1.7 billion by May of 1988, and four additional contracts were expected to have cost increases of $400 million.

The latest estimate has the cost growth on these contracts at over $2.6 billion.

To what extent does the Navy have assets identified to cover these cost increases?

Mr. **Pyatt**. In the past, I have testified that we had the money. I still believe we have the money, although a couple of incidents have occurred at Electric Boat. The strike may have increased the cost. We are not sure how much of that is our share.

I testified last year it was tight. I testify again this year it is tight. We go through an annual review process and that is when we get the opportunity to sum up with the program managers. In many programs, we have had reserves, they are there, please don't take them away, and that is kind of where it stands.

We may need to come back for reprogrammings and you have done that with us before between lines, and there may be as time evolves some need because we are close, but still, the fact that we are—nothing that is going on will see a substantial change in comparison to the $9.3 billion that you have already taken, so I think that is the key.

Mr. **Murtha**. Well, I think your chart is impressive so we will enter it in the record, because it shows graphically how important the competition has been. Without objection.

[Clerk's note.—The Department was asked to provide the above mentioned chart, but has not done so in time to be printed in this hearing volume.]

Mr. **Murtha**. Mr. McDade.

DESIGN FUNDING

Mr. **McDade**. Thank you, Mr. Chairman.

I want to welcome Secretary Pyatt and his colleagues here and thank you for a fine statement exhibited by the chart that says it all with great eloquence.

As you know, the budget request includes language changes which would extend the shipbuilding and conversion account to seven years availability instead of the current five years. And in addition to the current five-year provision, provisions are included to keep that account active for engineering services, test evaluation and other budgeted work that must be performed in the final stage of ship construction.

What will be the advantage to program execution of extending this period seven years? What good is it going to do?

Mr. **Pyatt**. I don't know. As a practical matter, we have found a way to finish our ships somehow, and I guess that is the real test. Some ships take longer than five years, particularly submarines and carriers. But the way the words are put together is in the original scope, and we haven't had any ships that have been unfinished. I am not in the budget world, and maybe this is some part of the budget part that is important.

Admiral **Hekman**. If design were included in SCN rather than RDT&E in appropriations, then I believe that it would be a necessary change, but with design funds out of the separate budget line, the five-year period is adequate.

Mr. **Pyatt**. Let me follow up on the issue he just raised because we have tried in this regard and haven't had much success, and part of our failing has been here.

I oversee our facilities work, too, and the military construction program has a design line in there. It provides the flexibility one needs to get designs started, well under way, so when it comes time to give you a budget, you know what it is.

I would like to see the same thing in the shipbuilding accounts. That is the one management change that I think has the potential of saving money, controlling designs, and getting contract proposals out so contractors really know what to have, that would be my number-one choice.

Mr. McDade. What kind of number would that require, in your opinion?

Mr. Pyatt. I would take it out of the R&D account and put it in the SCN account. That has another advantage in that sometimes we need a little money to work on it, and we can move a little bit around a lot easier here than you can in the R&D account. But the importance of getting designs nailed down——

Mr. McDade. You have firm figures and delivery schedules, you can come to us——

Mr. Pyatt. We can give you better numbers and if we have to recycle the design to cut down costs, it gives us a lot more flexibility to do that.

I don't know why we haven't been able to sell it but it is the number-one improvement I would have in management of the ship resources, to be able to do that.

Admiral Hekman. It was that way until 1973 and then it was changed at that time in 1973 to put it into a separate RDT&E.

Mr. McDade. Why was that done?

Admiral Hekman. I can't answer why.

Mr. McDade. Does everybody at the table agree that the suggestion is one that would save the taxpayers money, account for better administration, et cetera?

Admiral Hekman. Yes, sir.

SSBN FORCE STRUCTURE

Mr. McDade. The Trident program, in testimony before the House Armed Services Committee last week, Secretary Cheney provided a list of programs proposed for reduction in the budget, but not accepted by the Defense Resources Board. Included on the list was Trident submarines.

What is the planned total procurement for Trident submarines?

Mr. Pyatt. To the best of my knowledge, the Defense Department has not come on the concluding number. It gets involved in international negotiations and——

Mr. McDade. In the START negotiations?

Mr. Pyatt. That is right.

Mr. McDade. Can you give us a ball park figure on where we are?

Admiral Hekman. We have up to SSBN-741 under the Ohio class starting construction.

Mr. McDade. How many? All I am trying to get is kind of a high figure.

Mr. Pyatt. Roughly 16 or 17.

Mr. Dicks. Would the gentleman yield?

I have been asking the same question for about six years and it is almost impossible for me to believe that the United States Navy doesn't know how many Trident submarines you have an objective to procure. We are told for years that it was 20. Now I hear it is 20-some.

What is the problem with telling Congress what you are going to do on this program?

Mr. PYATT. I honestly don't know the end number. As far as I know, there has been no decision. The Secretary of Defense does.

Mr. DICKS. What is your recommendation?

Mr. PYATT. I have recommended cutting back several times. We haven't sold it.

Mr. DICKS. Thank you for yielding.

Mr. MCDADE. One of the basic problems you have is that the Trident has many more tubes on it and if you get into some kind of a limitation on warheads, it doesn't just involve shipbuilding, it is the negotiations.

Can you tell us what the reduction was during the budget review?

Mr. PYATT. The Navy proposed reduction of two Tridents, one in two different years.

Admiral HEKMAN. Alternating years.

Mr. MCDADE. Give me the fiscal years and the subs.

Mr. PYATT. I think it was the 1991 ship we proposed to cut, one in 1991 and one in 1993, as I recall it.

Mr. MCDADE. What prevailed? Can you tell us why the Navy's position didn't prevail?

Mr. PYATT. I wasn't in the meetings and I don't know. It didn't get very far.

Mr. MCDADE. What in your opinion is the optimal number of SSBNs to have under construction at any one time?

Mr. PYATT. The facility is designed for two or three. They are operating at about one a year. It is designed for a pace of two or three per year. They are operating at about one per year now.

Mr. MCDADE. Is that the obvious minimum?

Mr. PYATT. We can argue about whether it is one a year or one every other year, but it is one of those two numbers.

Mr. MCDADE. Can you tell us what the retirement schedule for existing SSBNs through the end of 1999 is?

Mr. PYATT. We will furnish that for the record.

Mr. MCDADE. How old will each SSBN be at retirement? Tell us that at the same time. Thank you, Mr. Chairman.

[CLERK'S NOTE.—Classified insert removed.]

Mr. MURTHA. Mr. Dicks.

START NEGOTIATIONS

Mr. DICKS. Mr. Pyatt, we want to welcome you and the Admirals. I want to compliment you on this. I think that is the proof of a job well done. Even though we have had some problems along the way. The gentleman from Washington has found the lash of competition at times to be painful. I think that speaks for itself in terms of what it has allowed for this particular account.

I want to go back to this Trident submarine question. The budget requests funds for the seventeenth Trident submarine and long-lead funds for an eighteenth Trident in fiscal year 1991.

As you know, serious questions have been raised with respect to prospective ballistic missile submarine levels that may result from a START agreement. The House Armed Services Seapower Subcommittee discussed this issue in detail at a recent hearing.

What is the status of the Joint Chiefs' review of START force levels under a START agreement?

Mr. Pyatt. I don't know. You have got the wrong people. We can put something in the record, but I don't know firsthand.

[Clerk's note.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Mr. Dicks. One of the concerns raised is the limited number of SLBM platforms that may remain in an all-Trident, post-START force structure.

What are your thoughts on proposals to either retain some number of the newest Poseidon submarines equipped with the C-4 or to reduce the number of missile tubes on Tridents in an effort to address this concern?

Admiral Nyquist. I think that is all tied up in START negotiations.

Mr. Pratt. You have got the wrong people.

Mr. Dicks. Would there be a problem with this from an operational viewpoint? In other words, reducing the number of missile tubes on Tridents, or do we have to start thinking about a new Trident submarine, a follow-on to the Trident that might have fewer tubes on it? What has been done there in terms of a research effort, design work?

Admiral Hekman. In the history of the Trident program, the number of tubes that are in the ship is a compromise between what we had in the old boats and what we originally wanted in the Tridents. It was a split.

Mr. Dicks. What did you really want?

Admiral Hekman. We originally were planning on 16 tubes but it is a split, so the number of tubes of course drives the number of ships depending on where the national authorities say we must be for weapons in the tubes. That is essentially what drives this.

The three of us are not participants in that discussion.

Mr. Dicks. Are you working on designing the next generation ballistic missile submarines?

Admiral Hekman. At the present time we do not have a design project under way for the next generation ballistic missile submarine, no, sir.

Mr. Dicks. There has been enormous criticism of the Navy for its reluctance to aggressively pursue new attack submarines, technologies or that we haven't been innovative enough with the SSN-21. I think with the kind of concerns that have already been expressed here and the limits that you might face in a post-START environment, I think it is incumbent upon the Navy to start thinking about a future ballistic missile submarine. I mean the Trident may be too big from a national security perspective in terms of the number of tubes per submarine.

People are talking now about various proposals to fill in with concrete, or whatever, eight or so of the tubes in order to be able to spread out the SLBMs over a larger number of submarines. These things are being discussed.

It would seem to me it would be incumbent upon you to start thinking about what your next generation ballistic missile submarine would look like, and I am surprised that that isn't being done.

Admiral HEKMAN. We design to a set of requirements and I cannot answer with respect to whether there is thinking going on in this respect or not. I am sure that there is thinking going on at the joint staff level and with the CINCs and with the appropriate warfare sponsors for the submarine issue, but I am the wrong person to answer that question.

Admiral NYQUIST. Congressman Dicks, perhaps we could provide you a briefing.

Mr. DICKS. All right.

Thank you, Mr. Chairman.

Mr. MURTHA. I just want to say, Mr. Secretary, several of us, Mr. Dicks, Mr. Livingston, and myself went up to the artic and we went aboard your Sturgeon class submarine.

It broke through three feet of ice. We appreciate shipbuilding even more, seeing that submarine break through the ice. We were underneath for 12 hours, and the quarters aren't very luxurious for somebody like Mr. Livingston and Mr. Dicks. They were in really small quarters there.

But the crew was so enthusiastic and the ship operated so well that we really appreciate the Navy and the troops out in the field operating—they had been out 42 days without a port call. I know that is a short time compared to some, but they did an outstanding job and we appreciate how difficult it is to build ships to all the requirements.

It was an interesting and exciting trip and we enjoyed it, but we are glad you build good ships.

Mr. Young?

Mr. YOUNG. Mr. Chairman, I have several questions that I would submit. We will handle them as though I asked the questions and as though they answered them and it will save time.

[CLERK'S NOTE.—Questions submitted by Mr. Young and the answers thereto follow:]

AIRCRAFT CARRIER GROUPS

Question. Secretary Pyatt, you make a very strong case in your prepared statement that the Carrier battle groups have been the backbone of this nation's ability to keep the peace and fight terrorism citing their involvement in the *Achille Lauro* hijacking, the Libyan bombing of 1986, and the recent successes in the Persian Gulf. You point out that seventy percent of our crises around the world requiring a military response since WWII have included the carriers. Now with the so called budget crisis, we are being told we can get by with one less carrier group and as you point out, the minimum force level needed cannot be maintained. How much thought about the threat we face went into that decision?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in ths hearing volume.]

MINE WAREFARE SHIPS

Question. Admiral Nyquist, you make the point that the Soviet Union possesses the world's largest offensive mining capability. We all also know how effective a relatively unsophisticated mine can be in the hands of a third world nation from our experience in the Persian Gulf. There is no telling what could happen if terrorists decide to start using mine warfare which could easily be done right here in American harbors. Why are the first ships to go in the budget cut two of the three Coastal Mine Hunters you requested in fiscal year 1990? Is this a prudent action for us to take given the threat?

Answer. The Navy fully supports the MHC shipbuilding program. The ships are absolutely necessary to support our overall mine warfare plans. The request for only one ship in fiscal year 1990 reflects the fiscal constraints in fiscal year 1990. The reduction in the fiscal year 1990 budget is balanced with a planned increase of 2 MHC Class ships in fiscal year 1994. The currently planned force level of seventeen MHCs is essential.

FRIGATE UPGRADE PROGRAM

Question. Admiral Nyquist, this committee has been very interested in your plans for upgrading the FF-1052 knox-class frigates. Two years ago the committee directed the Navy to review this issue and report back to us by January 29, 1988. It is my understanding that we haven't heard from you yet. What is the status of your frigate upgrade program? How soon do you think we will be receiving that report?

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Question. Are you going to be able to upgrade the ASW passive detection towed array sonar for FF-1052 ships to meet the new threat?

Answer. The FF-1052 upgrade program would include recommended ASW improvements to the current towed array sonar to provide a capability to meet the projected threat expected to oppose the FF-1052 class in its Protection of Shipping mission. ASW upgrades would include a new towed array and electronics to exploit multi-mode acoustic detections. The new array system, when integrated with the other recommended ASW upgrades, would provide an enhanced capability for passive detections. However within current projected total obligational authority, it is unlikely that the recommended warfighting upgrades for this FF-1052 Class can be funded.

[CLERK'S NOTE.—End of questions submitted by Mr. Young.]

Mr. MURTHA. Mr. Hefner?

Mr. HEFNER. Thank you.

I have the same request, Mr. Chairman. I have questions for the record.

Mr. MURTHA. Without objection.

[CLERK'S NOTE.—Questions submitted by Mr. Hefner and the answers thereto follow:]

POLYACRYLONITRILE (PAN) CARBON FIBERS

Question. Congress, in the 1988 Continuing Appropriations Act and again in the 1989 Defense Appropriations Act passed into law a provision which provided that:

The conferees strongly support the initiatives of the Secretary of Defense to ensure that defense contractors of the United States expand procurement of polyacrylonitrile (PAN) from domestic sources. Given the importance of PAN carbon fibers in present and future defense programs, it is imperative that the United States become self-sufficient in meeting critical defense needs as soon as possible. The conferees, therefore, recommend bill language that requires the Department of Defense to achieve 15 percent of the total Department of Defense domestic sourcing of PAN by 1988, 15 percent by 1989, 20 percent by 1990, 25 percent by 1991 and 50 percent by 1992.

The conferees further believe that the Department of Defense methodology of selecting high technology programs and designating them for domestic PAN carbon fiber use is the correct approach. The conferees accordingly recommend that this current policy be expanded to include all new programs utilizing PAN carbon fibers until the domestic source requirement is met.

It is our understanding that although there is a fully integrated domestic producer of PAN carbon fiber, the Navy continues to procure sole source from a manufacturer who produces carbon fiber utilizing precursor material imported from Japan.

The Air Force is currently utilizing domestically produced fiber in the B-2, MX, F-16, the CAS program and other classified programs. It is used commercially in the 737, 757, 767, Gulfstream IV and Citation III.

Why does the Navy continue to refuse to qualify a domestic source which is in direct violation of the principles of competition and dual source procurement and the expressed will of the Congress? Are the qualification requirements for the Navy suppliers different than for Air Force suppliers? If so, what are the differences and why do we have them?

Answer. The Navy fully supports Public Law 100-202 which directed the Secretary of Defense to establish annual goals for the procurement of PAN Carbon Fiber from domestic sources. The requirement is for domestic PAN fiber producers to supply 50% of fiber requirements by 1992.

The Navy is striving to qualify additional sources for the reasons articulated in the question. The Navy anticipates the domestic PAN fiber supply to be 25 percent by early 1991. Likewise, we predict U.S. domestic sources will be at the 50 percent level by 1992, as directed by Public Law 100-202.

Specific Air Force and Navy structural and aerodynamic application of PAN fibers are determined by prime aircraft manufacturers. Hercules currently supplies the majority of PAN fiber used by prime aircraft manufacturers. The Hercules plant for producing PAN fiber is offshore. AMOCO is a qualified U.S. supplier of PAN fiber used by the commercial market and on recent Air Force procurement "new starts", such as the B-2 bomber. AMOCO satisfies approximately 10% of the U.S. PAN fiber requirements. The commercial market and Air Force requirements consume the current output of the AMOCO domestic production base. The prime manufacturers for "ongoing" Navy aircraft programs using PAN fibers (e.g. F/A-18, AV-8B, etc.) only qualified the Hercules offshore source for PAN fibers. These prime manufacturers have not qualified AMOCO as a second source for PAN fibers for current "ongoing" Navy aircraft programs. Hercules is building a domestic plant to produce PAN fibers. BASF and HITCO (U.S. domestic companies) have expressed interest in becoming qualified, or licensed, to produce PAN fiber products for U.S. prime aircraft manufacturers. AMOCO has decided to increase their capacity to produce fibers beyond the level they currently produce for Air Force and commercial users. AMOCO is working with the prime manufacturers of Navy aircraft to become qualified as a second source for PAN fibers for "ongoing" or "new start" programs. The Air Force and the Navy have the same basic service requirements for PAN fiber.

The Navy has proposed to the Office of the Secretary of Defense the following DFARS clause for use by all the Military Departments:

DFARS 208.002-71, ACQUISITION OF POLYACRYLONITRILE (PAN) FIBERS FROM DOMESTIC SOURCES

Section 8088 of Public Law 100-202, the Appropriations Act of 1988, requires the Secretray of Defense to establish annual goals for the procurement of PAN Carbon Fibers from domestic sources as follows:

By fiscal year 1988; fifteen percent (15%) of total DOD requirements;

By fiscal year 1989; fifteen percent (15%) of total DOD requirements;

By fiscal year 1990; twenty percent (20%) of total DOD requirements;

By fiscal year 1991; twenty-five percent (25%) of total DOD requirements;

By fiscal year 1992; fifty percent (50%) of total DOD requirements.

The clause at 252.208.7006 shall be inserted in all solicitations and contracts for supplies over $25,000.

DFARS 252.208.7006, Acquisition of Polyacrylonitrile (PAN) Fibers from Domestic Sources.

As prescribed in 208-002-71, insert the following clause: Acquisition of Polyacrylonitrile (PAN) Fibers from Domestic Sources (XXX 88).

(a) Definitions: "Domestic Sources" as used in this clause, has the same meaning as "United States" at FAR 25.101.

(b) This clause applies only if the supplies furnished under this contract contain PAN carbon fibers.

(c) Materials and components comprised of polyacrylonitrile (PAN) carbon fiber contained in the deliverable product of this contract are required to be comprised of PAN fiber competitively procured from and manufactured by domestic sources.

(d) The requirement for delivery in (c) above may be waived in whole or in part by the Head of the Contracting Activity (HCA) or his designee if the contract production delivery schedule cannot be achieved because domestic sources have not been qualified. The waiver request by industry shall include technical justification and a plan to expeditiously qualify domestic sources by not later than fiscal year 1990.

[CLERK'S NOTE.—End of questions submitted by Mr. Hefner.]

Mr. MURTHA. Mr. Miller?

Mr. MILLER. No questions at this time, Mr. Chairman.

MINE COUNTERMEASURES PROGRAMS

Mr. MURTHA. Mr. AuCoin?

Mr. AUCOIN. Mr. Chairman, I do have a couple of questions.

Mr. Pyatt, I am concerned, as you know, about the MHC program, Mine Hunter Coastal program. Will you give us a status report on that program. I understand it is being stretched out. Perhaps you could describe that and maybe describe the effect on the deployment of the ships and the effect of that stretchout on future costs in responding to the question.

Mr. PYATT. Well, to go back in history for those who may not recall some of the discussions that occurred in this room, we tried to bring some advanced foreign technology to the United States, and we had several discussions about it and some disagreement, but it has been successful.

The first ship is under construction in a new facility designed to utilize modern fiberglass technology. I have a sample of the hull structure here and it is only half as thick or less than half as thick as the main hull. These ships—this is fiberglass here. This is the future technology for this. It is coming along. The second ship was awarded not too long ago and probably just started construction.

One of the directions of this committee that we totally agreed with was to bring in competition, bring in a second source, and we have gone through that process and have either released a solicitation or will within a day or so. I was somewhat surprised by the cut here, and we went back to argue about it, but the budget process had pretty much done us in. We had a three-ship program. We still think three ships is about the right number to get these needed ships. You know the state of our mine countermeasures force, and we need to rebuild it to get these ships moving. So we are just a victim of the budget situation.

Mr. AUCOIN. So in terms of the need there could be a case made, though you have to defend the budget obviously, but leaving aside those restraints for a second, looking at the requirement, one could make a case for three of these vessels; is that an accurate statement?

Mr. PYATT. I believe so.

It was in the President's budget. We thought it was justified, but the budget situation is ruling.

Mr. AUCOIN. How do you expect to award the second ship to the new producer when there is only $37.4 million remaining in the budget for basic construction?

Mr. PYATT. I think we have more than that. We have enough to make an award at our estimated value of the award.

Mr. AUCOIN. How much do you have?

Mr. Pyatt. I don't know. I don't have the number. We wouldn't go out on a solicitation without money.

Mr. AuCoin. Could you provide for the record what the cost per unit would be for three vessels instead of the cost per vessel on the proposed schedule?

Mr. Pyatt. Yes, sir.

[The information follows:]

The current cost per unit estimate for a three-MHC ship buy in fiscal year 1990 is $89.5 million, vice $105.3 million for a single ship procurement. Regardless of number of ships procured in fiscal year 1990, $15 million is required for battle spares procurement in fiscal year 1990.

Mr. AuCoin. Admiral Nyquist, I would like to have you state for the record your thoughts about U.S. capability in this field currently as this committee considers funding on the minesweepers and the whole minesweeper capability.

[The information follows:]

The need to continue a concerted effort toward enhancing our capability to counter a mining threat is paramount in our strategy. To this end the Chief of Naval Operations has directed that a formal mine countermeasures Chief of Naval Operations Executive Board (CEB) be scheduled this summer to address these concerns. Additionally, Mr. Garrett, in his former capacity as Under Secretary of the Navy, replied to correspondence from Senator Inouye that the Navy recognizes the deficiencies in this area and is taking positive steps to correct them.

Mr. AuCoin. Are we in good shape with anti-mine warfare? Did the Persian Gulf teach us anything?

Admiral Nyquist. The Persian Gulf certainly taught us the lesson of how an old mine can require as many forces really to be on station as newer mines.

We now have a total of 24 ocean-going minesweepers, 21 in the——

Mr. Murtha. Would you say that again, Admiral? Go through the whole thing.

Admiral Nyquist. The lessons of the Persian Gulf are that one can take old mines and still create the same kind of mine countermeasures problem that one would face with newer mines; that is, you need the forces in being and you need to get them over there.

Mr. AuCoin. Were those World War II threats that we were seeing?

Admiral Nyquist. The M-08 mine has been around longer but, still for its use, it is a very capable mine. We were able to, on very short order, get our airborne mine countermeasures equipment over there, but for long haul sustaining capability, we needed to move ships, and we did.

We have a total of 21 ocean-going minesweepers. Three are active and eighteen are reserves and I would certainly like to take my hat off to our selected reserves who—although they did not go in great numbers because they all had to be volunteers we still wound up with a good number of them over there.

They maintained those ships back here in good condition so when the call went out to get them and we put active sailors aboard, they did a fine job.

RESERVE PERSONNEL FOR MINESWEEPERS

Mr. MURTHA. Is that a real deficiency because if we can't get them on active duty except in national emergency, is there something we can do to alleviate that problem?

Admiral NYQUIST. For the MCMs, we are looking at a different mix of active and reserve mine countermeasure ships than we did two or three years ago before the Persian Gulf.

The Persian Gulf told us that we need a greater percentage of our mine countermeasure forces to be in the active fleet. So that certainly was a lesson. I want to be very careful when I talk about our old ocean-going minesweepers, because they did and are doing a tremendous job. You have heard of the expression iron men in wooden ships and that is what we have there. When we took the MSOs there, we towed them, not because they couldn't make it on their own, but because they had a high number of engine hours.

Mr. AUCOIN. How old are they?

Admiral NYQUIST. In the neighborhood of 30 years. I served on one in 1958 as a young Lieutenant Junior Grade, so they have been around a while.

The key capability that the modern mines countermeasure ship has that the older minesweepers do not——

Mr. AUCOIN. You are talking about the MCM?

Admiral NYQUIST. MCM and MHC. The difference is that you can't put all the capability all the time in that smaller coastal mine countermeasure ship.

The big difference is the ability to neutralize the mine, to find it, to hunt it down and to put a charge on it with essentially a remotely operated vehicle.

We call it the mine neutralization system, but it is a powerful remotely operated piece of equipment that swims down, looks at the mine that you have found on your sonar, and tells you exactly what it is and then has an/arm on it that puts an explosive cutter on, say, the mooring attachment, comes back to the ship and then you can blow that up whenever your operational requirements tell you it is the time to do it.

Mr. AUCOIN. That is a capability for both the MCM and the MHC?

Admiral NYQUIST. Yes, sir.

The MSO in the Persian Gulf detected a mine and then we put swimmers in the water to do the same thing that the remotely operated vehicle would do.

Mr. MURTHA. Did you lose any swimmers?

Admiral NYQUIST. No, but it took longer, and we had to give the swimmers rest, so it took even longer.

Clearly, the MCM would have done the job more efficiently and also provided much better habitability for the crews.

Those ships were built 30 years ago and, although they are air conditioned to some degree, they are not anything like the Avenger or the MHC-51.

Mr. AUCOIN. The capability we are using now is 30 years old? The MCM ocean-going minesweeper is a 30 year jump in technology; is that correct?

Admiral NYQUIST. Yes, sir.

Mr. AuCoin. Is it true that the MHC, which I understand is for U.S. coastal mine hunting resources and capabilities, is it true that this technology then would be available to go against any threat that would be poised off our coastlines, you can use that technology in the same way?

Admiral Nyquist. The difference is the smaller ship. It is built to operate for five days at a time and people have said in the past, "Gee, it only operates for five days."

It does, but it comes in for one, lets the crew load provisions, and then goes out for another five, so in a thirty-day period, it is operating twenty-five days.

Mr. AuCoin. What is going to happen to our capability for the coast minesweeper upgrade as well as for the ocean-going minesweeper upgrade if we have this stretchout? Is the U.S. on a comparative basis behind other countries in these respects?

Mr. Pyatt. There is not a better mine countermeasure ship in the world than the MCM 1, and I would say the same thing when the Osprey, the MHC-51, comes along, for its class of ship.

Mr. AuCoin. What if we don't build these?

Mr. Pyatt. We are committed to building the same number; we are just going to stretch it.

The two that won't get put in the 1990 budget get put in 1994.

Mr. AuCoin. Where would the United States be in relative terms in anti-mine warfare if these ships weren't available to us, the MCM and MHC ships, compared to other countries?

Mr. Pyatt. We would be substantially behind—not that we couldn't put some of that new capability in our older MSO's, but there is a point beyond which the electric load capability of the MSO would not handle it. The ships are 30 years old and they are tired.

Mr. AuCoin. My concern here, Mr. Chairman, is we have a stretchout in this proposed budget on the MHCs and I am not sure about the MCM, the ocean-going ones.

Mr. Pyatt. The MCMs, the stretchout has already occurred in the past and now the production process is under control, and what you see here is the final buy on those.

Mr. AuCoin. We have here a stretchout on the coastal minesweeping capability, one is under construction, another one is going to be awarded; no competition on that second ship, however, but then there is a stretchout which I think is going to have an impact on the unit costs and I think potentially run the risk of reduction on the total numbers that are built.

That is the issue that I think we need to flag for the committee.

Mr. Pyatt indicated he will give us information for the record as to what will happen on a per unit cost basis if three were built this year instead of what has been proposed.

Mr. Pyatt. Yes, sir.

[Clerk's note.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Mr. AuCoin. I appreciate your responses, Admiral, to the capability requirement, because I am really concerned that we don't have a modern capability to meet a fairly primitive threat.

I think we need to increase our technological capability to meet that mine threat.

Mr. PYATT. It is particularly interesting to point out some of the things that occurred, say, in the Suez Canal when commercial ships went through and left mines behind in other areas of the world in recent times in recent history. That could happen to U.S. ports, too.

Having the capability here in the States I think is important as we are trying to build ships.

Mr. AuCOIN. Protecting our own sea lanes?

Mr. PYATT. Yes, sir. Just from mine terrorists. It could occur, has occurred elsewhere in the world.

NEW THREAT UPGRADE

Mr. AuCOIN. Let me switch quickly to the issue of New Threat Upgrade. Mr. Pyatt, I understand you are very close to awarding some of the contracts under this program. What is the NTU program for 1990 and does the budget have enough funding in it to complete the schedules overall?

Mr. PYATT. Admiral Hekman has the detailed program here.

Admiral HEKMAN. This is for 1990. 1990 has U.S.S. *Gridley*, the *Stanley*, the *Wainwright* in the 1990 program. And we feel we have adequate funding in the budget at the present time for those three.

We expect contract award about 3 November 1989 for *Gridley*. We expect award 4 February 1990 on the *Stanley*, and a contract award about 20 March 1990 on the *Wainwright*.

Mr. AuCOIN. Is the *Wainwright* east coast?

Admiral HEKMAN. Yes.

Mr. AuCOIN. And *Gridley* and *Stanley* west coast?

Admiral HEKMAN. West coast, yes, sir.

Mr. AuCOIN. And you have the funding you need?

Admiral HEKMAN. At the present time the funding appears adequate to do those, yes, sir.

Mr. AuCOIN. What is that amount, $360 million?

Admiral HEKMAN. I will have to provide that number to you because I don't have it presently.

[The information follows:]

Total FY 1990 O&M,N funds currently budgeted for the U.S.S. *Gridley, Wainwright* and *Standley* regular overhauls, which include New Threat Upgrade (NTU) equipment installations, are $143 million. NTU equipments to be installed in these three ships were procured with earlier year OPN funds, and include many diverse equipments, e.g., Radars, Fire Control Systems, etc. The NTU OPN cost for these three ships is $110.5 million.

NAVAL RESERVE FRIGATES

Mr. AuCOIN. Let me then move to the question of transfer of frigates to the Naval Reserve. In looking at the Bush budget revisions, I see that it is recommended that 17 frigates, four in fiscal year 1990, six in 1991, seven in the 1992–93 period be transferred to the Naval Reserve.

For the record, Mr. Pyatt, would you provide the names and hull numbers of those ships, where they are now stationed, the cost savings and anticipated transfer of the ships to the Reserve, and what costs there are in transferring the ships?

Mr. Pyatt. The fleet is currently going through that process.

Mr. AuCoin. The record will be open for a while.

Mr. Pyatt. We will do the best we can.

[Clerk's note.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Mr. AuCoin. I would like to have for the record the number of personnel both active and reserve that will be needed to maintain and staff the ships in the first year and out years if there is a difference in the first year and out years.

Mr. Pyatt. Yes, sir.

[The information follows:]

Twenty-four FF-1052 class frigates are scheduled for transfer to the Naval Reserve Force commencing in fiscal year 1990. Cumulative ship manning is as follows:

	Fiscal year—			
	1990	1991	1992	1993
USN OFF	16	40	68	96
USN ENL	468	1,170	1,989	2,808
TAR OFF	20	50	85	120
TAR ENL	368	920	1,564	2,208
S/R OFF	36	90	153	216
S/R ENL	516	1,290	2,193	3,096
N/R of ships	4	10	17	24

PUBLIC/PRIVATE COMPETITION

Mr. AuCoin. On the public-private competition, Mr. Pyatt, you recently told the House Armed Services Seapower Subcommittee that private shipyards have gained not only from the increased competitive discipline required on their part but also by the opportunity to bid on a larger and broader range of availabilities; that you expect about 50 percent of the Navy's fiscal year 1991 maintenance and modernization workload non-nuclear will be available to the private sector. That sounds like good news.

Will you provide for the record the plan or schedule for the availabilities to accomplish that goal?

Mr. Pyatt. Yes.

[The information follows:]

The fiscal year 1989 nonnuclear private sector overhauls with starts dating from May 1989 are:

Hull No.	Ship	Start/end dates	Contractor
AD 41	U.S.S. Yellowstone	6/89–10/89	Norshipco.
FF 1087	U.S.S. Kirk	7/89–3/90	Todd Pacific.
MSO 490	U.S.S. Leader	8/89–12/89	Unawarded.
CG 23	U.S.S. Halsey	8/89–10/90	Unawarded. Public/private competition.
DDG 996	U.S.S. Chandler	8/89–8/90	Todd Pacific.
DD 981	U.S.S. Hancock	9/89–9/90	Ingalls.
CG 33	U.S.S. Fox	9/89–9/90	Nassco.

Fiscal year 1990 nonnuclear private sector or potential public/private competition overhauls are:

Hull No.	Ship	Start/end dates	Contractor
AFDB 7	U.S.S. Los Alamos	10/89-3/90	Unawarded.
CG 21	U.S.S. Gridley	2/90-3/91	Do.
DD 974	U.S.S. Comte de Grasse	5/90-5/91	Do.
DD 979	U.S.S. Conolly	5/90-5/91	Do.
CG 32	U.S.S. W.H. Standley	6/90-7/91	Do.
ARD 5	U.S.S. Waterford	6/90-12/90	Do.
CG 28	U.S.S. Wainwright	7/90-8/91	Do.
DD 977	U.S.S. Briscoe	8/90-8/91	Do.
DD 978	U.S.S. Stump	8/30-8/91	Do.

Mr. AuCoin. Thank you, Mr. Chairman.

Mr. Murtha. Mr. Livingston.

LSD CARGO VARIANTS

Mr. Livingston. Thank you, Mr. Chairman.

The Navy's five-year plan submitted with the original Reagan 1990–91 budget called for procuring one LSD cargo variant each year from fiscal year 1990 through 1994.

Has that plan been revised or are there any plans to revise the current five-year program for the LSD?

Mr. Pyatt. I don't know of any plans. I think that is unchanged.

COASTAL MINE HUNTER

Mr. Livingston. Good. Glad to hear it.

Let me say that I want to echo Mr. AuCoin's comments about the MHC. I think it is a necessary item.

Can you tell me whether or not the current move to cut back, and I presume that was made by OSD——

Mr. Pyatt. Yes.

Mr. Livingston. Whether that will affect your attempt to second source it?

Mr. Pyatt. Well, it is bound to have an impact. We have been sitting around trying to figure out exactly what the impact is. The people who are putting together proposals to be a second source have really got to have some concerns about the seriousness of the Defense Department in general, the corporate Defense Department in pursuing this program, having to cut it back after this committee and others have urged to get on with it. That is bound to send a ripple through.

No matter what we say about wanting to continue and build the force level a little slower, you are never sure what people think. We are asking them to put up a facility that is designed to do this kind of work and none exists.

Mr. Livingston. So you may be prepared to second source it, but not have prospective builders there?

Mr. Pyatt. That is right, and not getting the quality we want to see in those builders.

Mr. Livingston. Admiral, I think you said it had been pushed off to 1994 or 1992?

Admiral Nyquist. 1994. Two ships that were taken out of the 1990 column were shifted to the 1994 program. So you wind up with building four a year in 1992 and 1993, and then the last two in 1994.

Mr. LIVINGSTON. That is pretty tough on a production line, isn't it?

Admiral NYQUIST. Yes, sir.

Mr. LIVINGSTON. For either the existing builder or for the second source.

Admiral NYQUIST. That is right.

Mr. LIVINGSTON. The fiscal year 1990——

Mr. AUCOIN. Would the gentleman yield?

I think parenthetically we also ought to make sure the record reflects that is a pretty optimistic view of what the 1994 budget period is going to be like if you are planning to build four of these things in that year alone.

LANDING CRAFT AIR CUSHION

Mr. LIVINGSTON. That is highly unlikely. A lot of things can change in those few years.

Moving to the fiscal year 1990 request, that is for nine LCACs.

Admiral NYQUIST. Yes.

Mr. LIVINGSTON. The subcommittee provided 15 last year to get us going at an efficient level and at or near full rates of production.

If Congress provided funds in fiscal year 1990 to procure 12 craft, would that make sense in terms of maintaining two builders and more efficient production rates?

Mr. PYATT. One of the charts is on LCAC. Competition helped to sort out technical problems. It doesn't show so much in cost on these charts, but other things say that both manufacturers have the manufacturing process under control, are doing a good job and now is the time to strike while they have got the work force up and ready, get this program built and get it over with.

Mr. LIVINGSTON. So you could justify 12 vessels.

Admiral NYQUIST. We have a lot of capacity in both yards and they are both doing a good job.

Mr. LIVINGSTON. Okay.

Mr. Chairman, I have a number of questions I would like to submit for the record. I appreciate it. Thank you very much.

Mr. MURTHA. Without objection.

[CLERK'S NOTE.—Questions submitted by Mr. Livingston and the answers thereto follow:]

LSD PROCUREMENT

Question. Do your plans still call for procuring at least one LSD in fiscal year 1992? Or how many?

Answer. Yes. Our plans call for procuring one LSD in fiscal year 1992.

Question. Provide details for the record, and also provide the new 5 year Shipbuilding and Conversion plan as revised.

Answer. The 5 year plan is to procure one LSD per year in each of the years, fiscal year 1990—fiscal year 1994.

MHC—COASTAL MINE HUNTER

Question. Our Surveys and Investigations (S&I) staff has recently reported to us that earlier in the program there were a lot of potential candidates interested in going after the second source for the MHC. Late last year, the Navy identified only four firms "which might potentially compete" for the second source. But, our S&I staff has since found that only two firms had entered into agreements, with the existing builder, for data needed to assist them in preparation of responses to the second source RFP. Can you both comment? Please provide details for the record.

Answer. The RFP for the MHC 53, to be built by a second source shipyard, was released on 17 April 1989 with proposals due 16 June 1989. Several shipbuilders have picked up copies of the RFP. The Navy's contract with Intermarine SpA in Italy provides for the transfer of technology to the second source shipyard from Intermarine SpA in Italy, not Intermarine USA, the U.S. shipbuilder. The transfer of technology will be a contractual agreement between Intermarine SpA and the second source shipbuilder. The Navy is not a party to the agreement. Shipbuilders have been free to contact Intermarine SpA for over a year now, and many have. Three shipyards have entered into agreement thus far with others in negotiations. The Navy expects to have adquate competition for the MHC second source.

Question. Earlier this year, it was reported that the Navy had recommended against pursuing the outfitting of existing YP-683 yard patrol craft with mine detection and neutralization equipment as an alternative to the MHC program. Is the cut back to 1 MHC in the fiscal year 1990 budget an indication that the Navy may pursue this alternative?

Answer. The reduction from 3 to 1 MHC in the fiscal year 1990 budget is not an indication that the Navy might pursue outfitting YP-683 yard patrol craft as an alternative to the MHC program. This decision was solely the result of fiscal constraints. The reduction in the fiscal year 1990 budget is balanced with a planned increase of 2 MHC ships in fiscal year 1994. The currently planned force level of seventeen MHCs is essential.

Question. Does the Navy still feel that the YP-683 or "super coop" program is not a viable option?

Answer. The Navy has continued to study the YP-683 class as a mobilization asset for mine countermeasures. To supplement previous evaluations and to comply with appropriations conferrees' direction, in February this year the Navy outfitted a YP-683 class craft with a mine countermeasures system. The final report of the February demonstration and validation will be available by mid-year.

LANDING CRAFT AIR CUSHION

Question. The contract the Navy competitively awarded last year has an existing option for 12 craft. If 12 craft were provided in fiscal year 1990, couldn't we possibly get them quicker than we normally would? Is this accurate?

Answer. The existing contracts contain options for up to 12 additional craft in fiscal year 1990 from each of the two craft builders.

If either option, or combination of options, is exercised for a total of 12 craft, it would allow for LCACs to be delivered at a rate of 1 per month, which is a faster rate than if a lesser number is awarded. The 12-craft option would allow for production line efficiencies and unit cost savings as compared to lower quantity awards.

Question. Are there any problems with the existing craft or contractors that would not justify keeping the numbers for these craft at higher levels?

Answer. No. Production quality of LCACs from both builders has been acceptable and shows favorable trends. Maintaining the higher production rates established by the fiscal year 1989 awards would facilitate high quality levels by enabling the prime contractors and their subcontractors to maintain a stable work force.

Question. Provide for the record the additional monies, above the fiscal year 1990 request, needed to procure 12 LCACs in fiscal year 1990.

Answer. An additional $60 million would be required for 12 vice the 9 craft currently requested. These additional monies would include spares and other logistic support as well as construction.

LHD PROGRAM

Question. The revised budget submitted to Congress last week moves procurement of one LHD from fiscal year 1992 up to fiscal year 1991. Is it the Navy's intention to still conduct a full and open competition on this fifth LHD as well as those in the outyears?

Answer. Yes. The Navy intends to conduct competition on a three ship procurement package with the LHD 5 as the first ship.

Question. The Navy's original plans were to convert to gas turbine power systems for LHD 5 and on. LHD's 1 through 4 were to be procured with the steam turbine systems. Have the Navy's plans changed? If so, how?

Answer. The Navy's original plans were that all LHDs would be steam propelled. Our successful experience with gas turbine propulsion in other ship types indicates that, in addition to reliability improvement, significant personnel and maintenance savings can be achieved if LHDs 5 and on use gas turbine vice steam propulsion. Design work is ongoing to incorporate previously proven gas turbine into the LHD 5 specifications. Upon completion of the current design effort a decision will be made whether or not to proceed at this time with gas turbines.

Question. If the Navy were to convert LHD 4 to a gas turbine system, as opposed to the originally contracted for steam turbine system, wouldn't such a change result in a very large change order to the existing LHD contract and its options? To what extent? Provide details for the record.

Answer. The LHD 4 was the final option on the LHD 2 contract awarded to Ingalls Shipbuilding Incorporated. The Navy was looking at converting the LHD 4 to a gas turbine system; however, due to the projected cost and schedule impacts for changing from the contracted steam propulsion system, this alternative has been rejected.

T-AO PROGRAM

Question. What is the status of the Navy's request, as outlined in its April 6, 1989 letter to various shipbuilders, to seek offers for a possible reprocurement of the last two T-AO's at Penn Ship?

Answer. The Navy has received quotes from several shipyards interested in completing the T-AO-191 and T-AO-192. These quotes are in the process of being reviewed.

Question. What are the main conditions for deciding what yard, if any, would receive the last two T-AO's from Penn Ship? Is it price, ability to perform, what?

Answer. Ship construction contract awards are complex decisions. In the case of T-AO-191 and T-AO-192, a combination of cost, financial responsibility, facilities capabilites and management expertise will be among the factors considered in the determination of a follow-on shipyard.

Question. Who will make the decision on any transfer of the T-AO's from Penn to another yard, the Navy or Penn Ship?

Answer. The Navy will make the decision. However, under the current plan, Penn Ship's concurrence would be obtained.

NEW THREAT UPGRADE (NTU)

Question. Will the one vessel scheduled under the NTU Program in fiscal year 1990 for the East Coast be done under full and open competition between all private and public yards along the East and Gulf coasts? If not, why not? Explain for the record the statistical strategy for the East Coast ships.

Answer. The current strategy for the fiscal year 1990 NTU overhaul is to complete the availability between all private and public yards along the East and Gulf coasts.

[CLERK'S NOTE.—End of questions submitted by Mr. Livingston.]

RESERVE PERSONNEL FOR SEALIFT

Mr. MURTHA. Let me go back to this reserve and regular component issue. I see such a great need for sealift, and I have talked to Chairman Bennett about this. He is looking at the possibility of authorizing five or six ships, SL-7s or similar types for $1 billion. I don't know where we will get the money but he is looking at that possibility. I suggested to him the only way we could probably do it was to keep them in reserves.

In the mine-sweeping problem in the Persian Gulf, did we only take volunteers? Is that the way it worked?

Admiral NYQUIST. Yes, sir.

Mr. MURTHA. So if you went to sealift, if you went to building ships and put them in the reserves, this type of a ship, would that be as much of a problem as mine warfare ships?

Admiral NYQUIST. Yes, sir, Mr. Chairman. As the law is currently written, the President has the authority to call up to 200,000. Otherwise, it is a voluntary situation.

Mr. MURTHA. How many did you get for the Persian Gulf operation, do you know?

Admiral NYQUIST. I will provide it for the record, but it was in the neighborhood of 30 to 40 sailors.

[The information follows:]

As of 9 May 1989, 322 drilling Naval Reservists have been on active duty supporting the Persian Gulf operations.

Mr. **Murtha**. So in a sense you had ships, but people who were really trained to operate them weren't able to go to the Persian Gulf because they couldn't get away, they weren't willing to volunteer or they couldn't volunteer because of their civilian jobs, so you had to man those ships with a combination of regulars and reserves?

Admiral **Nyquist**. Yes, sir. We used the ships that are not deployed to provide the crews on a four-month on/eight-month off, now six on, 12 off basis. So we are rotating active duty crew members from West Coast home-ported ships to the Persian Gulf.

SEALIFT SHIPS

Mr. **Murtha**. Where are we in sealift now? Do we know what percentage of sealift ships we have available in case of a national emergency?

Mr. **Pyatt**. We have the SL-7s that we converted. There is about a division's lift. We bought I forget how many, but roughly 60 ships off the commercial market.

There is included some very fine roll-on/roll-off ships that we got at sale prices. So there is more than a division lift there. Those are in the ready reserve fleet under the custody of MARAD right now. I guess the rest of it depends on how many you want and for what purpose.

The thing that we keep running into is, you have heard many times, the overall decline of the American Merchant Marine in the world markets, the decline of the number of ships necessary to carry the cargo that goes on the ocean and the very fierce competitiveness of the Far Eastern lines in locking out American ship operators from their cargo.

Mr. **Murtha**. Well, this is the only way I see to go, is to put ships in the reserves. Build them with a military contract, and put them in the reserve.

I remember Senator Stevens tried to do it the other way, and it didn't work. I see a shortfall here in not being able to use them unless it is a national emergency, but at least you have them available.

Mr. **Pyatt**. You have them available and the other thing I wanted to get to is the ships that are commercially useful are, by and large, container ships. Ships that are militarily useful are roll-on/roll-off ships that you can move wheeled vehicles onto. So the two communities are diverging rapidly. I think it is something we need to face up to.

Just in the Navy's case we have got so many demands on us and OSD only gives us a certain share. I know Mr. Dicks has raised issues in another area, and the pot is only so big. We try to do the best we can.

Mr. **Murtha**. I appreciate that. But every time we hear people testify to the fact that they are going to take people overseas—for instance when the Transportation CINC testified—I think he said 90 percent of everything that goes overseas still goes by ship.

Mr. **Pyatt**. Absolutely. That is the reason the Navy is important and we have to defend these ships.

Mr. **Murtha**. If we are going to be serious about any possibility of withdrawing troops from Europe or Korea down the road we are going to have to have a way to return troops there. So this is one of the things that will have to be addressed if negotiations result in the withdrawal of troops.

Mr. **Pyatt**. I agree.

Mr. **Murtha**. Mr. McDade.

SUBMARINE FORCES

Mr. **McDade**. Can you tell me how many SSNs are planned to be procured, and what will be the unit price down throughout the entire program?

Mr. **Pyatt**. I dont't have that chart. We don't have the entire program.

Mr. **McDade**. What do you have, five years or so?

Mr. **Pyatt**. We have what is under construction. There is one SSN-688 in 1990 and 11 SSN-21's through 1994.

Mr. **McDade**. Eleven?

Mr. **Pyatt**. Yes.

Mr. **McDade**. What is the unit price?

Mr. **Pyatt**. Looks like about $1 billion on average over that period of time. The SSN-688 is now about $800 million. There is one in the 1990 program at $800 million.

Mr. **McDade**. What, for comparison, would the Trident be running at now?

Mr. **Pyatt**. They are at a billion three.

LANDING CRAFT AIR CUSHION

Mr. **McDade**. A billion, three. Let me ask about the LCAC. The Navy version is supposed to be able to carry the M-1 tank, which had a total weight—it is up around 68, 70 tons. There has been some question about whether there was a test of the LCAC's ability to carry the M-1 tank in September of 1988. Are you familiar with that test?

Mr. **Pyatt**. No, I am not.

Mr. **McDade**. Are you familiar with that, Admiral?

Admiral **Hekman**. I am not familiar with that test, Congressman McDade.

Mr. **McDade**. There was concern about whether it could handle it.

Admiral **Hekman**. During the operational testing of the LCAC two years ago, she carried considerably in excess of her rated load during those tests. That is on record.

Mr. **McDade**. There is a series of committee questions on the LCAC. Can you please answer them for the record?

Admiral **Hekman**. Yes.

Mr. **McDade**. Thank you.

Thank you, Mr. Chairman.

[**Clerk's note**.—Questions submitted for the record and the answers thereto follow:]

Question. The Landing Craft Air Cushion (LCAC) was designed to carry 60 tons of cargo with an overload capacity of 75 tons. The

Navy has touted the ability of the LCAC to carry the M1A1 Abrams main battle tank. The M1A1 weighs 64.3 tons, and with additional features could reach a total weight of 68.5 tons. A demonstration of the LCAC's ability to carry the M1A1 was scheduled for September 1988 at Little Creek. What were the results of the test?

Answer. The M1A1 tank was successfully tested on the Jeff (B), a prototype to the LCAC, in July 1984, but has not been tested on the LCAC. However, in July 1988, an M1A1 tank was successfully transported aboard the LCAC from Aberdeen Proving Grounds to NAB Little Creek, a distance of over 150 nm. The LCAC required a fueling stop at Annapolis. The LCAC, in August 1988, then transported the M1A1 from Little Creek, VA, back to Aberdeen with the same fueling stop.

Question. How did the LCAC perform in different sea state conditions?

Answer. The sea state experienced during the transit from/to Aberdeen Proving Ground was sea state 1. However, during Builders Trials, every LCAC is required to conduct a sustained run of 1 hour with both a 60-ton payload and 75-ton payload and meet designated requirements. To date, 16 craft have been delivered to the Navy. Of these, 13 have successfully completed Final Contract Tests. The remaining 3 craft are scheduled for final contract trials this summer. Thus, the LCAC has successfully completed a cumulative of 43 trials meeting the requirements. A total of 28 of these trials were conducted by the Board of Inspection and Survey. All were successful and several were conducted in seas up to sea state 3. The LCAC completed Developmental Tests (DT) in February 1987 and Operational Tests (OT) in April 1987. The LCAC has also been on a total of four deployments to the Western Pacific and is currently on a deployment in both the Altantic and in the Pacific where it has on numerous occasions carried loads in excess of 60 tons. The LCAC has proven itself well qualified to carry up to 75 tons and meet its required performance.

Question. How did the weight of the tank affect the maneuverability and speed of the LCAC?

Answer. During the transit from Aberdeen to NAB Little Creek and return, the LCAC did not experience any maneuverability problems. During tests and fleet experiences noted above, maneuverability is not a problem provided the LCAC is operated in accordance with the Safe Engineering and Operations (SEAOP's) Manual for the Landing Craft, Air Cushion (LCAC).

Question. What was the weight of the fuel in the LCAC and the M1A1? Was this taken into consideration in the test? If so, what impact did this have on the test?

Answer. The overload combat displacement of the LCAC is 368,250 pounds. This includes a 150,000-pound cargo plus the fuel required to meet the mission planned.

During mission planning, factors of sea state, ambient temperature, wind direction, payload, and distance to the beach all must be considered to determine fuel requirements for the LCAC.

At Aberdeen, the LCAC was topped off with 19 tons of fuel. The version of the M1A1 transported was 63.5 tons.

Question. What problems were identified by the test and what steps are being taken to resolve or minimize them?

Answer. The only problem that has surfaced to date between the M1A1 tank and the LCAC is the excessive number of tie down lashings that may be required to secure the M1A1 to the LCAC during the transit phase of a deployment aboard ship. The tank must be able to be restrained up to a sea state 7 condition.

NAVSEA is currently conducting a study to determine the current number of tie downs that will be required to secure the M1A1 if it is preloaded onboard the LCAC during the transit phase of a deployment while aboard ship.

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. MURTHA. Mr. Dicks.

NEW THREAT UPGRADE

Mr. DICKS. The new threat upgrade language that this committee put in the bill last year, has that caused considerable difficulty at Long Beach and can you give us the status on that?

Mr. PYATT. Committee often times causes trouble.

Mr. DICKS. Pesky, isn't it?

Mr. PYATT. It comes from various quarters. So that is just part of the system. We learn to live with it. That is why my skin gets so thick.

Mr. DICKS. Should we have left the one that was given to Long Beach in place?

Mr. PYATT. I am not going to relive that. It is over with.

Mr. DICKS. What is going to happen to Long Beach Shipyard as a result of that?

Mr. PYATT. I am sure they will pull through. They are tough, resilient fellows.

Mr. DICKS. We proposed $60 million that I thought was supposed to go to Long Beach. Maybe we didn't earmark it directly for Long Beach. Is that going to happen?

Mr. PYATT. I don't know anything about what you just said. This issue has been raised before. I went back—certainly not in my personal knowledge from anyone on this committee—and went back and looked at the report language and we didn't miss anything, and then I asked our comptroller folks what we missed, and they said nothing. So if we missed something, I apologize, but our comptroller didn't split it up that way.

Mr. DICKS. What did you do with the $60 million? We thought this was supposed to go to help alleviate the consequences of the new threat upgrade decision to help Long Beach so it wouldn't have this tremendous dip in workload.

Admiral HEKMAN. These funds went to the Fleet Commanders and they used it to alleviate backlog of maintenance, depot maintenance that they had approved.

Mr. AUCOIN. Wasn't the Navy's plan originally to complete two NTUs in fiscal year 1989?

Mr. PYATT. We went through several plans on NTU. I don't know where the original number started.

Mr. AUCOIN. Reading from the record of the fiscal year 1989 hearings Secretary Garrett testified before our committee, the original Navy plan was to compete all future non-nuclear NTU ships between public and private yards in fiscal year 1989. So the idea of the competition in the NTU program has been a Navy idea from the beginning.

Admiral **Hekman**. That was the original plan, sir. However, we did not have adequate funding to develop the bid specifications package that would have been required for that types of competition.

Mr. **Dicks**. We still think we put $60 million in for enhanced funding that should be used to the greatest extent practicable for enhancements of current work packages. Was that done?

Admiral **Hekman**. That was done, yes sir.

Mr. **Dicks**. Can you tell us what was done?

Admiral **Hekman**. I can get that answer for you. The funds were expended by the fleet commanders.

Mr. **Dicks**. Was anything done at Long Beach?

Admiral **Hekman**. Yes sir, additional work was put into Long Beach with that particular money. That particular money was added to the O&M,N pot the fleet commander has.

Mr. **Pyatt**. You raised the question about committee direction a minute ago. The thing I liked about the NTU directions was it was precise. We knew what to do with it. I didn't know what to do with that extra funding, didn't know anything specific. It is distributed to the fleets and it enhanced work someplace.

Mr. **Dicks**. Okay.

Mr. **Pyatt**. We are not very smart and we have got to be told. If you want it to go to Long Beach, you say Long Beach. We understand that.

TRIDENT PROGRAM

Mr. **Dicks**. Let's go back to this Trident situation.

Mr. **Pyatt**. Yes, sir.

Mr. **Dicks**. If we went to your plan that was proposed but rejected, for taking a Trident out in 1991 and 1993, would that raise costs substantially? is there any down side to that? What worries me is here we are, we are talking about a START agreement in which everybody who has looked at this says all we are going to have after that is somewhere between 16 and 20 ballistic missile submarines.

When you look at the 6,000 warheads and potential outcomes, why do we want to keep going ahead at this? I understand there is more capacity up there, but why would we want to keep going ahead at this pace until we see where the outcome is, especially since we need money for other things?

I assume that this part of the rationale for your decision which I think was a pretty reasonable proposal. Is there anything here that I am missing in terms of what this would do to the cost of these Tridents, et cetera?

Mr. **Pyatt**. Slowing down the pace was going to change the cost.

Mr. **Dicks**. How much would it have been?

Mr. **Pyatt**. One hundred to $150 million a ship, by stretching out. There was cost involved but we are also picking up some other ships we got reduced prices on and we are trying to work on the conventional forces. That was our logic in putting the thing together. And it wasn't accepted. Fine.

Mr. Dicks. I missed that last part.

Mr. Pyatt. It wasn't accepted. Fine.

Mr. Dicks. But certainly it would be an option if Congress wanted to be a little cautious here about building more than 20 Trident submarines on the theory that under a START agreement, all we may be able to deploy is 20 or less. Some people say somewhere between 16 and 20 is all we will be allowed to deploy under a 6,000 warhead ceiling.

Mr. Pyatt. Under that argument we are at 6,000.

Mr. Dicks. Right.

Mr. Pyatt. So the next three or so years at the pace we are talking about, gets us to 20. There are a lot of other discussions going on I am not aware of.

FRIGATE MODERNIZATION

Mr. Dicks. I just wanted to get the implications if for some reason Congress wanted to step up to this and slow this program down, what the down side would be.

In fiscal year 1988 the committee directed the Navy to review options for a frigate modernization program, taking into account the projected acoustic electromagnetic threats and the attendant impact of such a program on the shipbuilding industrial base.

The conferees, the Appropriations Committee, expected the Navy to report its findings and recommendations no later than March 31, 1988. When we still had not heard from the Navy during deliberations on the 1989 budget, the committee repeated its direction, yet there is still no report. Can you tell us why?

Mr. Pyatt. Admiral Nyquist can talk more about it, but it has been a continuing struggle. Along with the budget changes, you get mixed up with what can you afford to put into old ships and the budget changes, and you have to go back and start all over again. He can tell you the trials and tribulations.

Mr. Dicks. I think at some point the Navy has a responsibility here. There has been a directive by the Congress twice to give us something. You haven't even given us a report that says we don't know what to do. I know that would be embarrassing.

Admiral Nyquist. Yes, sir. The Secretary has signed an interim report to you. We are not trying to dodge that issue. We have been working assiduously on it, not only to look at the intitial direction which aimed itself at the 1052 class frigate. When we looked at it, we felt there were more ships that we had to look at.

We had to look at all the frigates, FFG, *Oliver Hazard Perry* class as well as the FF-1052 class. We have looked at those and in the Secretary's last letter to the committee, he said we would be coming to you with a report, about midyear. We are hopeful to get this issue before the CNO in the next four to five weeks. Once we do, and once we take a look at it, that is the capability changes against the budget dollars in the future years we will get that report to you.

We certainly have not been trying to stonewall. It has been a tough and thorny issue.

SSN-21 CONTRACT PRICES

Mr. DICKS. The first contract for the SSN-21 was awarded on January 9 for $726 million. Information provided to the committee indicates the contract was for basic construction and post-shakedown availability planning.

The budget shows the cost of basic construction as $609.8 million, $116 million less than the contract award. Can you explain the difference?

Mr. PYATT. We raided the reserves in the line. That ship is very tight in the budget. There are program manager's change reserves and future characteristics reserves. We raided that to get enough money to award the contract. That program is very tight.

Mr. DICKS. Why is PSA planning required more than five years before the ship deliveries date?

Mr. PYATT. As part of the construction contract it is just part of the way we do business. It is in the SCN budget. PSA is funded out of SCN.

[Additional information follows:]

PSA for OHIO Class submarines is not planned 3-5 years prior to ship arrival. Planning for the PSA normally commences 1 year prior to ship arrival for PSA (after delivery).

For the SSN-688 Class PSAs, normally advance planning and long lead time material procurement is authorized 2-3 years prior to PSA start. This amount of lead time is required due to the magnitude of planned PSA work, and because some material requires 1-2 years for procurement, assembly and manufacture to support shipboard installation.

Mr. DICKS. What is the cost of PSA planning?

Mr. PYATT. I don't know. It is a small number.

Mr. DICKS. We can get it for the record?

Mr. PYATT. Yes.

[The information follows:]

For the SSBN-726 Class PSA planning, the cost has been approximately $1 million per ship. For the SSN-688 Class PSA planning, approximately $3-4 million are required for advance material procurement/manufacture and design planning for a normal PSA.

Mr. DICKS. How much are you budgeting for escalation of the first ship?

Mr. PYATT. We will have to furnish that to you.

[CLERK'S NOTE.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Mr. DICKS. What do you estimate the final cost of basic construction for the first ship?

Mr. PYATT. It is in the budget and we are very tight and it may be over and we may have to come back.

Mr. DICKS. What do you estimate to be the end cost for the first ship?

Mr. PYATT. Same. It is in the budget.

Mr. DICKS. Have you revised the fiscal year 1991 cost estimates, and if so, what are the new estimates?

Mr. PYATT. 1991 gets into what is going to be the price at the second yard. Do we split one? Do we split it between the two yards, and what is the price of the second yard, and I think the 1991 budget is also very tight.

Mr. DICKS. So we don't have a cost estimate?

Mr. PYATT. We have in 1991. Three billion one hundred sixty-one point nine million. That is what is in the budget. That is the entire ship—entire two ships. And there is long lead material for three—we need to break out the long lead to answer your question precisely.

Mr. DICKS. How many SSNs will be procured and what do you estimate to be the average unit cost for the entire program?

Mr. PYATT. The currently planned program is 29. I believe that program number will raise with time just as the DDG-51 has gone up with time, and the average cost to the program will change.

TRIDENT REFITS

Mr. DICKS. Let me ask one question and I know Admiral Hekman will know a little bit about this. They are contemplating retrofitting the first Trident submarines, at least the first two at the Puget Sound Naval Shipyard. Is the program scheduled for start in 1993?

Admiral HEKMAN. 1994, sir.

Mr. DICKS. Has that been slipped a year?

Admiral HEKMAN. My data says we will be starting that I guess calendar 1993 but fiscal year 1994.

Mr. DICKS. So it would be the fall or winter?

Admiral HEKMAN. Right.

Mr. DICKS. Has that program been changed? It has not been changed because of any budget considerations?

Admiral HEKMAN. No, it is supposed to begin in October of 1993.

Mr. DICKS. So I understand the decision has been reached to have the first two overhauls done at the Puget Sound Naval Shipyard and then the rest of them, that is an open question at this point?

Admiral HEKMAN. The rest of them will done in a phased manner at shorter availabilities. That is the plan at the present time.

Mr. DICKS. Is there any consideration being given to not retrofitting those Tridents with the D-5?

Admiral HEKMAN. I am the wrong person to answer that question. I would have to get that for the record.

Mr. PYATT. I don't know of any consideration. I thought the last time we went through this probably three years ago, the decision was to retrofit the D-5 and I don't know of any changes considered since then.

Mr. DICKS. Thank you, Mr. Chairman.

Mr. MURTHA. Any other questions?

Mr. Miller?

COASTAL MINE HUNTER CONSTRUCTION

Mr. MILLER. I have just a couple of questions, Mr. Chairman.

I notice in the plastic fiberglass sample that all of the fiberglass will run in sheets down through the plastic. When it is ripped it can come apart between the two sheets. Why do they not run it counter-clockwise, every other one, to give it the super strength compared to laminating in such a way where it is just one on top of the other?

I am talking about crossing. It seems that is the weakest way. All the products are there. It is just a matter of turning the plastic.

Admiral **Hekman**. You will find, sir, that the grain in the glass is woven in a cross manner such that whichever way you lay it down, this way or that way, you still have the cross hatch pattern in the glass.

Mr. **Miller**. But if it is starting to peal from the end and go down between two of those plates of glass where they separate——

Admiral **Hekman**. The tests that have been run show the material is very resistance to delamination. That is one of the criteria.

SHIPBUILDING STEEL

Mr. **Miller**. Maybe they can make it more so. It came to mind when we spoke of the amount of ships that you will have by the end of 1989, you hope to have 563. There is a lot of shipbuilding going on at the present time, but I am not sure that I have heard where that steel comes from.

Mr. **Pyatt**. It is all United States.

Mr. **Miller**. All United States. And it would all be competitively bid?

Mr. **Pyatt**. The shipbuilders buy it, we don't.

Mr. **Miller**. But you can stipulate in the contract where it comes from and how——

Mr. **Pyatt**. We stipulate it is the United States. But they do the buying. But with the pressures that are on, I also know they work over the steel manufacturers.

Mr. **Miller**. Of the ships that we have docked and in storage, are there ships available where the hull could be used, if the hull is still good?

Are some of those hulls that are in dock, now stored, so to speak, in case of an international problem, is it possible to pull some of those?

Mr. **Pyatt**. Well, there are several categories. I am not quite sure which one—let me talk about some of them. I guess the best example we have of pulling ships out of mothballs are the four battleships. Those came out. They are probably the most complicated. They were in very good shape. We modernize them with modern combat systems and it turns out the old 16-inch gun is sort of a short range armament on those ships.

The next category we can talk about are some of the cargo ships that we have in the ready reserve fleet. Some of those are available on five days notice. Others get up to 30 days.

Then there is a category of ships in what we call the NDRF that are available on 60 or 90 days notice. I would also say they are somewhat more questionable. They are old ships.

Then there are a few ships in the Navy combatant fleet that are in the reserve, a couple of gun cruisers, a variety of old destroyers. Those are available for mobilization. They would take considerable more time to reactivate should we decide to activate them, measured in many months or years.

Mr. **Miller**. In answer to the question as to whether it is possible to use one of the old hulls and modernize it and just starting with that hull itself, has that been done in the past?

Mr. PYATT. Not that I know of. I would sort of react to that if you are going to do that, you are better off to build what you are building. If you are talking about a desire, just go ahead and build more of that same thing, because the hull part is a fairly small part of the overall construction process. Putting in a combat system and all the support pieces that go through it is the hard part.

Mr. MILLER. I understand that, but the hull part undoubtedly is the bulk of the steel. It is the rough work and that is what it amounts to, and it seems like it would save a lot of time if you could start with a hull that was truly good and modernize it into one of the ships of what we consider to be modern day ships.

Mr. PYATT. That is expensive. Once you start ripping out and putting back, it is expensive. Building the hull, the basic structure of a ship, is the least expensive part. Outfitting is the expensive part.

Mr. MILLER. Thank you, Mr. Chairman.

USS ENTERPRISE OVERHAUL

Mr. MURTHA. I just want to ask one other area about the *Enterprise*. Would you go over what you see happening in the refueling and the rehab of the *Enterprise*?

Admiral HEKMAN. *Enterprise* is presently scheduled for refueling in 1991.

Mr. MURTHA. You have already spent how much on the refueling at this point?

Admiral HEKMAN. About $470 million in preparations and in the purchase of fuel for *Enterprise*, some of which is also preparation for follow-on carrier refuelings and for refueling of the cruiser *Long Beach*.

Mr. MURTHA. If nothing happened to the *Enterprise*, how much of that would be lost?

Admiral HEKMAN. All of it. Maybe we could save $5 million.

Mr. MURTHA. So this is a unique refueling?

Admiral HEKMAN. Yes sir.

Mr. MURTHA. You will have to spend how much for refueling?

Admiral HEKMAN. Are we talking total package or just the refueling?

Mr. MURTHA. Just refueling and then total package.

Admiral HEKMAN. The refueling overhaul, reactor plant overhaul preparations and the government furnished equipment, and the cost of execution, comes to just slightly over a billion dollars.

Mr. MURTHA. So that includes the $470?

Admiral HEKMAN. Yes sir.

Mr. MURTHA. Now, what about a rehab?

Admiral HEKMAN. If you go into the rehab package we are talking modernization and repairs of a package of $444 million is the estimate right now.

Mr. MURTHA. That is $1.5 billion, around $1.5 billion, for the total rehab.

Admiral HEKMAN. Yes sir. I also said we have already spent close to a half a billion dollars in preparation. So the total package is just under $2 billion.

Mr. MURTHA. It is under $2 billion. All right. So you have to spend $1.5 billion more?

Admiral HEKMAN. Yes, sir.

Mr. MURTHA. All right. Now what if you were going to decomission the *Enterprise*? What would it cost?

Admiral HEKMAN. Sir, I don't have a firm figure for that but the estimate, based upon reactivation of submarines to date, would indicate somewhere between $500 and $600 million.

Mr. MURTHA. So if we were to make a decision you are going to buy a new carrier, you have already spent a billion dollars. If you include the refueling cost spent to date and the $500 million it would cost to decommission?

Admiral HEKMAN. Yes, sir.

Mr. MURTHA. What does a new carrier cost?

Admiral HEKMAN. Three point six billion in today's dollars. Depending on if we got a double year buy, that might come down some.

Mr. MURTHA. What is the life of the rehab carrier?

Admiral HEKMAN. Now *Enterprise* will operate for 20 years on fuel we put in here. That fuel is worth about $550 to $600 million in terms of what fossil fuel would cost in today's prices, not extrapolating out what it might be 15 or 20 years from now.

So the fuel that is already purchased has the equivalency of more than a half a billion dollars worth of conventional fuel.

Mr. PYATT. That is right, but it is funded differently.

Admiral HEKMAN. It is funded differently, that is true. But it still is that.

We also then have a ship which has full capabilities and all of the assets that come with nuclear propulsion for 20 years.

Mr. MURTHA. How long would a new ship last before it had to be rehabed?

Admiral HEKMAN. The *Nimitz* class carriers are on a refueling cycle of about 17 years. Even after 17 years you would have to spend about half a billion dollars at least.

Mr. MURTHA. How many conventional carriers do you have at sea in operation?

Admiral HEKMAN. We have nine.

Mr. MURTHA. Nine. How old are they?

Admiral HEKMAN. The oldest is the *Midway,* followed closely by *Coral Sea.*

Mr. MURTHA. So they are coming out of the inventory, it sounds like, right?

Mr. PYATT. That is right.

Mr. MURTHA. What would be the next one in line?

Admiral HEKMAN. *Saratoga.*

Mr. MURTHA. Actually we would be better off refueling the *Enterprise* and it wouldn't make cost sense, it doesn't sound like, to get rid of the *Enterprise* and build a new ship. If we are going to do anything, it would make more sense to get rid of a conventional carrier.

Admiral HEKMAN. No sir. We need both *Enterprise* and eventually, if we maintain our carrier forces, we also need about one ship every three years if we are going to keep our carrier force on a 45 year lifetime per carrier. If we try to go with a new ship now——

Mr. MURTHA. So you are saying the *Saratoga* class or whatever—what is that class, those conventional carriers?

Admiral HEKMAN. *Saratoga* is in a class of her own, followed by *Forrestal* and then we get into the larger carriers. The oldest is *Forrestal* behind *Midway* and *Coral Sea*, then *Saratoga, Ranger, Independence, Kitty Hawk, Constellation,* and then we have *Enterprise* and *America. America* is newer than *Enterprise.*

Mr. MURTHA. If we reduce the number of carrier battle groups, with the same mission we have got worldwide, we are talking about extended time at sea. I remember talking to one carrier skipper and he told me that I think the *Eisenhower* was out eight months without a port call during one extended tour, and of course, when they came home, half the ship left, they didn't reenlist.

So you found that six months is pretty well the retention cut-off line?

Admiral HEKMAN. Yes, sir.

Mr. MURTHA. You get any longer than that people get discouraged and upset about deployments. You are keeping people out not more than six months, isn't that right?

Admiral HEKMAN. That is the objective, yes, sir.

Mr. MURTHA. That is the ideal. At least that is the time we have settled on.

Admiral HEKMAN. Changing conditions do change that, but that is the ideal. If we were to replace *Enterprise* with a new ship and we tried to get that ship moving right now, it would be around the year 2001 before we had that ship.

Mr. MURTHA. I can see though it wouldn't make any sense anyway, because you would still at some point have to have another nuclear carrier. So this is really cheaper than any other way we could go at this point.

Admiral HEKMAN. Yes, sir.

Mr. MURTHA. The only way it would be any cheaper is if we just didn't do anything and then, of course, we wouldn't have the carrier battle groups we need out there.

Admiral HEKMAN. Right.

Mr. MURTHA. Any questions, Mr. McDade?

Mr. MCDADE. No, Mr. Chairman.

Mr. MURTHA. Mr. Dixon has some questions for the record. Thank you very much.

The Committee will adjourn until 10:00 a.m. tomorrow.

[CLERK'S NOTE.—Questions submitted by Mr. Dixon and the answers thereto follow:]

FUNDING FOR WEST COAST SHIP REPAIR

Question. I have received numerous letters and statements from employees and management organizations from the Long Beach Naval Shipyard concerning their future, the importance of their jobs to the mission of the Navy and the security of the United States, and the pride they feel in being a part of the defense of our Nation. I will not revisit the problem of the U.S.S. *Halsey* and its affect on the Long Beach Naval Shipyard. I am sure you know my views and those of some of my California colleagues. But without the U.S.S. *Halsey* or comparable work, there will be a reduction in force, lay offs and termination of Long Beach's vital work force.

I understand we made available in last year's Conference Report an additional funding of $60 million to the Navy that allows for New Threat Upgrade installation and/or overhauls on West Coast based ships. What is the status of the $60 million?

Answer. Approximately one half of the $240 million fiscal year 1989 augmentation, which includes the additional $60 million, went to the West Coast as follows:

The Puget Sound public sector has been assigned three surface ship availabilities: $2.67 million on two ships to accomplish predominantly combat system and communication systems alterations, and $5.5 million to accomplish various repairs to propulsion plants on one ship.

The U.S. Navy's Yokosuka ship repair facility has been assigned one surface ship availability: $.17 million to accomplish various repairs on a propulsion plant.

The Long Beach public sector has been assigned no maintenance work.

The U.S. Navy's Guam ship repair facility has been assigned two surface ship availabilities: $1.41 million to accomplish alterations to firefighting systems.

The Pearl Harbor public sector has been assigned no maintenance work.

The Long Beach private sector has been assigned six surface ship availabilities: $20.95 million on four different ships to accomplish predominantly combat system and communication systems alterations, $3.705 million to accomplish alterations to firefighting systems on two ships.

The Seattle private sector has been assigned one surface ship availability: $1.72 million to accomplish alterations to firefighting systems.

The San Diego private sector has been assigned nine surface ship availabilities: $7.715 million on four ships to accomplish predominantly combat system and communication systems alterations, $5.07 million to accomplish alterations to firefighting sytems on three ships, and $5.2 million to accomplish various repairs to the propulsion plant on two ships.

The Pearl Harbor private sector has been assigned one surface ship availability: $0.1 million to accomplish various repairs to the propulsion plant.

The San Francisco private sector has been assigned three surface ship availabilities: $.38 million on one ship to accomplish crew living space alterations, $1.0 million to accomplish alterations to firefighting systems on one ship, and $1.7 million to accomplish various repairs to one ship's propulsion plant.

A total of $7.05 million is designated to be spent at various, though to date undetermined, West Coast private and public shipyards for predominantly combat systems modifications on a number of ships. $.07 million will also be spent in a similar fashion for firefighting system modifications. $35.0 will be spent, as directed by Congress, at an undetermined West Coast yard for the repair of one cruiser, and $15.67 million will be spent on the same ship for New Threat Upgrade (NTU).

LONG BEACH NAVAL SHIPYARD

Question. It seems that every 2 or 3 years our public shipyards are the targets of a "reduction in force," layoffs, or threatened closures. For example, the Long Beach Naval Shipyard has decreased its employment roll from slightly over 7,000 in 1981 to less than 5,000 in 1989. Long Beach employees have argued that this was the largest decrease in the work force of any of the eight Naval shipyards. The Commanding Officer of the Long Beach yard prepared and presented to NAVSEA a reorganization plan that will, if approved, down size the employment level by 700 or more permanent employees. I believe this reorganization plan, if implemented, would severely jeopardize the Long Beach Naval Shipyard's ability to function as an industrial mobilization base capable of supporting the Fleet under emergent conditions in the Pacific theater. If this reorganization plan is approved, would it not decrease the Navy's ability to maintain its commitment to long-term employee development programs?

Answer. The reoganization will not affect or change the Navy's or Long Beach Naval Shipyard's commitment to long-term employee development. The reorganization will combine the Staffing and Employee Development branches into a separate Training and Development Branch within the Personnel Operations Division.

Question. If this reorganization plan is approved, would it not restrict the Navy's capability to hire skills that are uniquely oriented to Naval modernization and repair?

Answer. The reorganization will not restrict in any way the Navy's hiring capability.

Question. If this reorganization plan is approved, would it not limit the shipyard's ability to respond to emergency work, our national security and the projection of Naval power in the Pacific theater.

Answer. The reorganization will not affect the shipyard's ability to perform emergency work. The purpose of the reorganization is to make the shipyard more businesslike and efficient, while maintaining a core of production workers able to support the projection of Naval power in the Pacific theatre and our National Security. Central to the concept of the maintenance of a core workload is keeping the core work force in training by providing an adequate supply of complex and technically challenging shipboard work, so that skills can be honed and processes perfected. By downsizing and reorganizing, the shipyard management hopes to reduce overhead costs and win sufficient work in the Public/Private Competition program to retain those irreplaceable skills. Without the reorganization, the shipyard will not be able to compete with the private sector: the shipyard will be underutilized, employees will be idle, training opportunities will be lost, and the shipyard will become a severe drain on the Navy Industrial Fund.

CORE WORKLOAD

Question. I understand that there is an ideal core workload and skills mix at our eight public shipyards that should be maintained to meet the Navy's strategic mission. Would you elaborate on the importance of the core workload at each of the public shipyards, and explain how the Navy attempts to maintain the proper trade mix?

Answer. The core workload is that workload necessary to maintain a core work force of critical skills in the Naval shipyards in order that they may execute their mission. This core work force is predicated on the Secretary of the Navy's policy to maintain a strategic industrial base capable of certain types of work in various geographic locations. Our current policy is to:

a. Maintain two shipyards on each coast capable of repairing aircraft carriers. (Norfolk, Philadelphia, Puget Sound and Long Beach Naval Shipyards)

b. Maintain one shipyard on each coast capable of repairing surface nuclear ships. (Norfolk and Puget Sound Naval Shipyards)

c. Maintain three shipyards on each coast capable of overhauling nuclear submarines. (Portsmouth, Norfolk, Charleston, Mare Island, Puget Sound and Pearl Harbor Naval Shipyards)

d. Maintain three shipyards on each coast capable of installing, checking out and repairing current state-of-the-art electronics and missile weapons systems. (Philadelphia, Norfolk, Charleston, Long Beach, Puget Sound and Pearl Harbor Naval Shipyards)

e. Maintain Pearl Harbor Naval Shipyard capable of emergency repairs of all Pacific ships and capable of overhauling all ship types homeported in Hawaii.

Failure to sustain a core workload would erode our critical skills, jeopardize our ability to maintain the strategic industrial base, impact our ability to perform emergency work, and severely limit mobilization capabilities.

The Navy maintains the proper trade mix by assigning workload commensurate with the Secretary's policy and through in-service skills training, apprentice programs, and recruitment strategies and practices. However, the core workload is a very subjective estimate.

Question. In your opinion, what is the future of the public and private shipyards in light of the Navy's overall long-term strategy?

Answer. Sheduled repair and modernization workload will decrease significantly during the early to mid 1990s, prompting a reduction in employment levels in both the public and private shipyards. This downswing in workload is occurring because of new maintenance philosophies (fewer overhauls with shorter duration maintenance/modernization periods in between); more reliable equipments; early retirements of some maintenance intensive ships; and, budget constraints. In the private sector, this problem is compounded further by a total lack of commercial shipbuilding and commercial ship repair work. Barring any favorable developments in commercial ship construction or repair, market forces and individual business practices will largely determine which shipyards remain viable.

The Navy will closely monitor the public shipyards throughout this timeframe to determine their ability to perform those critical elements of Naval ship repair required by the strategic industrial base. We expect the repair and modernization workload to return to approximately current levels in the mid-to-late 1990's.

Question. It has come to my attention that the Navy is giving contracts to private industry contractors, who choose to employ non-U.S. citizens to perform construction, conversion, repair and overhauls of Naval vessels, while U.S. citizens who are employed in public yards are being terminated. Could you explain?

Answer. Department of Justice regulations permit employment of legal aliens in private industry. As long as contractors follow all applicable federal laws and statutes, the Navy does not preclude private shipyards from employing non-U.S. citizens to perform work in areas not containing classified material or sensitive information.

PUBLIC/PRIVATE SHIPYARDS

Question. As a new member of the subcommittee, I would appreciate additional details on how the Navy assigns ships to the public and private shipyards. For example, I understand that the U.S.S. *Ranger* has been assigned to the Long Beach Naval Shipyard, work is to start in October 1989, and the projected workload is 40,000 mandays. If the reorganization plan is implemented, the shipyard will have to rehire the majority of the employees for temporary appointments from October through December. I am sure you are aware of the perennial problem of hiring skilled craftsmen for such a short period of time. Many of our skilled craftsmen who are terminated or under reduction in force (RIF) orders leave the area to seek the more permanent employment.

I understand that following the work at Long Beach, the U.S.S. *Ranger* is scheduled to undergo a "selected restricted availability (SRA)" in San Diego that will take 40,000 mandays of work to accomplish. The Navy was not mandated to divide the availability of the 80,000 mandays on the U.S.S. *Ranger* between private and public sectors, yet chose to do so. If the entire availability of the SRA on U.S.S. *Ranger* was assigned to Long Beach, with a starting date of July 1, 1989, Long Beach Naval Shipyard could eliminate the requirement for a "reduction in force (RIF)" and maintain the skill levels that are necessary to keep the shipyard viable and mobile. How are these types of decisions made by the Navy?

Answer. The U.S.S. *Ranger* does not return from deployment until August 1989. The decision to split the fiscal year 1990 U.S.S. *Ranger* (CV 61) Docking SRA between Long Beach Naval Shipyard and commercial yards in the San Diego homeport area was based primarily on two factors. First, completing the availability at San Diego (11 December 1989—15 February 1990) will ensure that the ship's crew is in their homeport during the holiday season, thus alleviating the negative consequences of extended family separation, a critical element in retaining Navy servicemen. Second, the division of work helps maintain critical carrier repair skills in both Long Beach and San Diego. This effort to balance limited maintenance work is indicative of the difficulty faced by the Navy in helping to preserve the nation's heavy marine industrial base during periods of fiscal austerity.

[CLERK'S NOTE.—End of questions submitted by Mr. Dixon. Questions submitted for the record and the answers thereto follow:]

SHIPBUILDING COST OVERRUNS

Question. The General Accounting Office (GAO) has been reviewing selected shipbuilding contracts since December 1986. The initial report to this committee in October 1987 showed cost increases for 19 contracts projected at over $1.4 billion. The cost increases on these 19 contracts had escalated to over $1.7 billion by May 1988 and 4 additional contracts were expected to have cost increases of $400 million. The latest estimate has the cost growth on these contracts at over $2.6 billion. What programs are experiencing cost underruns and what is the estimated value of the underruns?

Answer. The three programs with contracts expected to experience costs underruns and the amounts are as follows:

Program	Fiscal year	Amount (millions)
Trident	81/83/84	[Deleted]
T-AO	86/87	[Deleted]
CG-47	85/86	[Deleted]

Question. The current estimate includes growth of ——— associated with construction of submarines at Newport News and Electric Boat. What is the overriding factor which has contributed to the cost increase for submarines?

Answer. The over target cost increases associated with the construction of attack submarines are attributable to a number of factors. The Navy believes that the largest single factor is the aggressive bidding employed by the two shipbuilders, Electric Boat and Newport News Shipbuilding, both of which have actively competed for the contracts to build these submarines. These were Fixed-Price Incentive (FPI) contracts with a 50-50 shareline. As the contractor exceeds target cost, he and the Government share equally in the over target cost increase. As stated above, the Navy recognized that many of these contract prices were optimistic and that the target costs could be exceeded. We have retained funding on this program as a hedge against our share of growth above target cost. Congress has, in the past, taken some of the funds we had reserved to cover our share of growth above target cost. Although the aggressive price competition has therefore contributed to over target cost increases, the Navy believes that the final price to be paid will be lower than that which would have been paid in the absence of competitive bidding. Both shipbuilders have also made aggressive business decisions in their proposed schedules which they have failed to meet. Accordingly, costs have increased along with delivery delays. Additionally, the strike at Electric Boat, and the problems at Newport News Shipbuilding in utilizing the modular construction facility have contributed to the cost increases.

APPROPRIATION AVAILABILITY

Question. The budget request includes language changes which would extend the Shipbuilding and Conversion account to 7 years availability instead of the current 5 years. In addition to the current 5 years, provisions are included to keep the account active for engineering services, tests, evaluations, and other such budgeted work that must be performed in the final stage of ship construction. What is the average value of unobligated balances at the end of 7 years?

Answer. The average value of the unobligated Shipbuilding and Conversion, Navy balances was $169 million. This average balance reflects the lapsing of funds which were appropriated in FYs 1978–82, and represents an average of 2.6 percent of the obligational authority which expired at the end of the fifth year of availability.

Question. In response to the 1985 Appropriations bill, the Assistant Secretary of Defense (Comptroller) submitted a report which examined historical trends in lapsing balances and indicated several management intitiatives to improve obligation performance. One management improvement dealt with contingent liability funding requirements. How does the Navy manage contingent liability funding? Is the funding held centrally or is it held by each program manager?

Answer. In the Shipbuilding and Conversion, Navy appropriation, funding for contingent liabilities is specific to the program, and is held by the program manager with the assistance of the Comptroller who sets aside the funds to prevent their use for other purposes. NAVCOMPT accounting policy requires funds to be set aside (i.e., committed) for contingent liabilities contained in contracts.

USS IOWA ACCIDENT

Question. Please provide for the record what the cost and time requirements are for repair of the turret and replacement with a vertical launching system (VLS), if feasible.

Answer. Repair: Norfolk Naval Shipyard planners and estimators are currently evaluating cost and time requirements to repair the turret. A preliminary estimate provided by the initial damage assessment team was $20 million and 6 months industrial effort preceded by a 6-month advance planning period.

Replacement: A quick in-house review of the feasibility of replacing Turret 2 with VLS was accomplished. A rough order of magnitude cost estimate of $53 million was developed. This option would require a minimum of 18 months advance planning followed by 12 months of industrial effort.

SSN–688 PROGRAM

Question. The submarine construction program presented last year included five SSN–688 class submarines in fiscal year 1990 and beyond. The budget presented in January reduced this program to two submarine in fiscal year 1990. The revised budget presented last week reduces the program further to one submarine in fiscal year 1990 and no procurement beyond. How can the requirement for attack submarines change so dramatically in such a short period of time?

Answer. The reduction in SSN-688 Class submarines requested in the fiscal year 1990 budget is strictly a function of fiscal constraints. In reaching budgetary decisions, we have ensured that our current and future total naval ASW capabilities are balanced and effective in the full range of encounters at sea.

Question. How many attack submarines are required to support the Navy's mission?

Answer. The Navy remains committed to a minimum SSN force level goal in 100 multimission attack submarines which is required to execute the US Maritime Strategy against the Soviet threat of the 1990s and beyond.

Question. How many SSN inactivations are planned through the end of fiscal year 1995?

Answer. From fiscal year 1990 through fiscal year 1995, there are 16 SSN inactivations planned.

Question. The two submarines requested in January budget included a 16 percent increase in the cost of basic construction. What is going to be the cost of basic construction for the one submarine you are now requesting in fiscal year 1990? What will be the total cost in fiscal year 1990?

Answer. The estimated cost for basic construction is about $420 million.

Question. How much of the advance procurement funding for the fiscal year 1990 program is wasted because of the program change?

Answer. $111 million of advance procurement funding was placed under contract in support of the second fiscal year 1990, ship, with the majority of the funding involving nuclear components. We are currently assessing the completion status of the contracts involved to determine not only the value to the government of terminating these contracts but whether the value to the government would be better served by continuing the purchase of selected end items to support class spares requirements.

Question. What funding would be required to terminate the SSN-688 program with no procurement in fiscal year 1990?

Answer. If the SSN-688 program is terminated with no procurement in fiscal year 1990, about $107 million would still be required to support design services for the remaining 18 SSN-688's in new construction.

SSN-21 PROGRAM

Question. The first contract for SSN-21 construction was awarded on January 9, 1989 for $726 million. Information provided to the Committee indicates the contract was for basic construction and Post Shakedown Availability (PSA) planning. What is the cost of PSA planning?

Answer. The target price on the contract for PSA planning is $4,131,000.

Question. How much are you budgeting for escalation for the first ship?

Answer. Escalation budgeted in support of the President's Budget for the first ship is $83,300,000.

Question. How many SSN-21s will be procured and what do you estimate to be the average unit price for the entire program?

Answer. A total of 29 ships is currently planned with an average unit price for the fifth and follow on ships of approximately one billion dollars (fiscal year 1985 base year dollars).

DDG-51 MULTIYEAR PROCUREMENT

Question. The budget proposes a 25-ship multiyear procurement (MYP) split into two contracts. The first would be for 10 ships in 2 years and the second will be for 15 ships over 3 years. Why are you proposing this strategy as opposed to one contract for 25 ships over 5 years?

Answer. The proposed 24-ship MYP calls for two competitions (not necessarily only two contracts); the second competition allows the Navy to incorporate Flight II changes into the DDG configuration. A single contract for 25 ships would effectively eliminate the losing shipbuilder from future competition. Note: The Bush amended budget submission includes 24 ships, reducing the fiscal year 92–94 MYP procurement from 15 to 14 ships. Recalculated savings for the 24-ship MYP is estimated at $620 million vice $645 million.

Question. How will the Flight II ships differ from the Flight I ships?

Answer. It is planned that Flight II ships will incorporate: AEGIS Extended Range Missiles (SM-2 Block IV), an upgraded missile; Joint Tactical Information Display System (JTIDS), an inter-service information distribution system; Combat DF, a shipboard direction finding system which provides reliable detection and classification of targets beyond the horizon; and Tactical Digital Information Exchange (TADIX B) for exchange of surveillance data.

Question. The Multiyear Procurement exhibit for the DDG-51 program states that the Flight II baseline is not priced in the analysis. How can the reported savings be viewed with any degree of confidence if basic annual pricing of Flight II is not available?

Answer. Flight II upgrades are generally electronics installations which will have very little impact on the basic ship construction multiyear contracts. We do know that implementation of Flight II using a multiyear acquisition strategy will be less expensive than using the annual procurement approach. Therefore, pricing Flight II will only increase the expected savings. Our confidence level is quite high.

Question. Assuming the multiyear competition will not result in a winner-take-all award, how do you propose to achieve multiyear savings while maintaining two sources?

Answer. The multiyear request for ship construction expands our highly successful competitive approach by guaranteeing the work units and including suitable cancellation liability, thereby reducing the shipbuilders' risk. The plan is to proceed with a 24-ship MYP strategy which will significantly enhance the degree of competition between the two DDG-51 Class shipbuilders. Two competitions will be held between the current shipbuilders: the first MYP competition covering 10 ships will be awarded in fiscal year 1990, the second competition for 14 ships will be awarded in fiscal year 1992. Funding will be incremental through annual appropriations.

MYP savings on shipbuilding contracts can be achieved through (1) quantity price reductions due to a stabilized work force, work order backlog and more competitive unit ship pricing, (2) economic order quantities due to a reduction in contractor furnished equipment costs, and (3) improved production and planning estimates as experienced on the CG-47 Class Cruiser program, reflecting accelerated, more aggressive learning.

Question. What is the status of your efforts to second-source and compete the AEGIS system?

Answer. Second sourcing efforts are on track. The Fire Control System (FCS) director/controller and transmitter have been successfully competed. Qualification procedures have begun for the AN/SPY-1 antenna and transmitter. Head-to-head competition for these components is currently scheduled for fiscal year 1991.

Question. Are any savings reflected in the budget which result from competition of the AEGIS system?

Answer. The AEGIS Weapon System (AWS) budget reflects savings derived from competition of AWS subsystems. The Fire Control System (FCS) director/controller competitive procurement started in fiscal year 1987, and savings of $2.5 million and $3.4 million are included in the fiscal years 1990/91 budgets, respectively. The FCS transmitter competition began in fiscal year 1988 and is expected to realize savings beginning in fiscal year 1994. No savings are predicted in fiscal year 1991 for the initial AN/SPY-1 antenna/transmitter competition.

Question. Have you considered a multiyear procurement for the AEGIS system to go with the basic ship construction multiyear procurement?

Answer. We are currently reviewing the feasibility of multiyear procurement for the AEGIS Weapon System. Though we believe that some savings could be expected, we have not yet quantified the degree of savings or throughly reviewed the acquisition strategy impacts.

Question. What is the status of the 1989 contract award for basic construction?

Answer. The five ships appropriated in fiscal year 1989 were awarded in December 1988. Bath Iron Works received a $610 million contract for three guided missile destroyers and Ingalls Shipbuilding Industries received a $466.5 million contract for two guided missile destroyers.

MCM-MINE COUNTERMEASURE SHIPS

Question. On January 31, 1989 the Navy concluded a financial settlement with Marinette Marine Corporation, a builder of MCM ships. Included in the settlement was "extraordinary contractual relief" of $24.1 million allowable under provision of Public Law 85-804. Will the settlement of January 31, 1989 provide sufficient funding to complete construction of the three MCM's at Marinette Marine?

Answer. The contract modifications were signed by the Navy on 7 February 1989. The settlement was for a total amount of $62.6

million, of which $38.5 million was entitlement under the terms of the contract and $24.1 million was extraordinary contractual relief under Public Law 85-804. After analysis of the status of completion of the three Marinette ships and the Navy's estimated costs at completion, the total settlement of $62.6 million does provide reasonable assurance that the Navy will receive all three completed ships.

Question. Marinette indicated that receiving some portion of the fiscal year 1989 MCM program was essential to maintain their business base and keep the MCM costs under control. But the three ships were awarded to Peterson Builders Incorporated. Does this mean Marinette Marine will be unable to complete the three ships under the terms of the January 31 settlement?

Answer. The Navy's analysis of Marinette Marine's costs to complete the three MCMs they presently have under contract did not assume any additional MCM awards. The proposals for the remaining MCMs had not been received at the time of the analysis, therefore, the Navy could not assume who would win the ships. The fact that Peterson won the remaining ships should not preclude Marinette from completing their three ships within the terms of the settlement.

Question. Is the Navy exploring other courses of action to complete the ship if Marinette cannot absorb the losses resulting from the decreased business base?

Answer. As stated above, Marinette should be able to complete the ships within the terms of the settlement. Therefore, there is no reason at this time for the Navy to explore other courses of action to complete the ships.

MHC-COASTAL MINEHUNTER

Question. The fiscal year 1989 MHC program consists of two ships. In December 1988, the Navy approved procurement of one of these ships on a negotiated basis with Intermarine USA rather than through full and open competition as originally planned. The second ship is to be competed, with Intermarine barred from the competition. Why did the Navy award the first ship to Intermarine USA without a competition?

Answer. In order for Intermarine USA to remain as a source for the MHC shipbuilding program as agreed to by the Committee in 1986, the company must maintain its manufacturing expertise, skilled work force, facilities and equipment. It was necessary to award one fiscal year 1989 MHC ship sole source to Intermarine USA to ensure that they remain a viable competitor for future ships.

Question. The budget revisions of last week reduces the fiscal year 1990 quantity from three ships to one ship. What was the rationale for the reduction?

Answer. The request for only one ship in fiscal year 1990 reflects the fiscal constraints in fiscal year 1990. The Navy fully supports the MHC shipbuilding program and considers it absolutely necessary to support our overall mine warfare plans.

Question. Is the mission of the MHC both mine hunting and mine sweeping?

Answer. Yes, the MHC-51 class has both a mine hunting and mine sweeping mission.

Question. What is the status of the mine sweeper system development for this ship?

Answer. Both the mechanical and influence sweep systems for the MHC-51 class ship are funded as new starts in fiscal year 1990. These systems will be modular in nature so that either system can be loaded onboard as tactics dictate.

T-AO FLEET OILERS

Question. Pennsylvania Shipbuilding Company has indicated it is not able to complete construction of T-AO-191 and T-AO-192 at the current firm fixed-price contract of $331.4 million. How much money is unexpended on this contract?

Answer. As of 1 May 1989, approximately $42 million of the current contract for the T-AO-191 and T-AO-192 was unexpended.

Question. Is that enough money to complete the ships at any shipyard?

Answer. At this point, it appears that the unexpended funds on the contract are insufficient to complete the ships. The Navy is in the process of evaluating data submitted by Penn Ship and quotes submitted by other shipyards to determine what funds are required to complete the T-AO-191 and T-AO-192.

Question. Has Penn Ship indicated to the Navy how much it would require to complete the ships?

Answer. Penn Ship has only indicated that it cannot complete the ships within the current contract terms and conditions. Penn Ship has not indicated the amount necessary for them to complete the ships.

Question. What is the Navy estimate of the funding required to complete the ships?

Answer. To complete the T-AO-191 and T-AO-192 at Penn Ship or another shipyard will require additional funds. Exactly how much money above the amount currently unexpended is still undetermined, as we are in the process of evaluating data from Penn Ship and quotes from other shipyards.

Question. Why did the Navy send a letter to various shipyards on April 6, 1989 announcing a possible reprocurement contract for these two ships?

Answer. The Navy is examining various alternative methods of completing the two remaining ships. The purpose of this correspondence was to request the submission of quotes by those shipyards interested in being considered for a possible reprocurement contract.

Question. Was Penn Ship requested to submit a reprocurement contract quote for these two ships?

Answer. No, they were not.

Question. Do you feel Penn Ship has the ability and expertise to complete the ships?

Answer. Both ships represent good quality workmanship and attention to the detail required for marine construction. However, Penn Ship has continued to sustain substantial cost overruns, essentially stopping work on the ships, and they have dramatically reduced their work force. Without a significant infusion of new money and upgrading of their work force, Penn Ship will be unable to complete the T-AO-191 and T-AO-192.

Question. Were there any local government guarantees, financial or otherwise, associated with the original contract award to Penn Ship?

Answer. No. However, Penn Ship secured a loan in the amount of $10 million from the State of Pennsylvania to make improvements to the shipyard to facilitate performance of the T-AO contract. Five million dollars of this loan is guaranteed by Delaware County, Pennsylvania.

Question. Will the reprocurement suggested in your April 6, 1989 letter result in a financial loss to any local government?

Answer. This approach was taken in an attempt to permit Penn Ship to fulfill its contractual obligation. The approach does not appreciably increase the likelihood of financial loss to any local government.

T-AGOS PROGRAM

Question. Three T-AGOS-19 Ocean Surveillance Ships were appropriated in fiscal year 1989 for $158.9 million. The request for fiscal year 1990 asks for $155.8 million for one lead ship in the T-AGOS-23 program. This nearly threefold increase in cost is due to design changes in the ship's length, beam, displacement, and electronics. What are the reasons for the design changes?

Answer. The T-AGOS-23 design changes in ship length, beam, displacement and electronics are required to accommodate the addition of a second acoustic system. The second acoustic system gives the T-AGOS-23 greatly expanded acoustic collection capabilities and enables the ship to perform its basic mission ———.

Question. How many ships of the T-AGOS-23 design will be procured and what will be the average procurement unit cost?

Answer. There are six T-AGOS-23 Class ships planned for in the period fiscal year 1990 through fiscal year 1994, at an average end cost of $132.8 million per ship. In addition, another $4.7 million per ship is required for Outfitting and Post Delivery costs, bringing the procurement unit cost to $137.5 million per hull. Any T-AGOS-23 Class ships to be procured beyond fiscal year 1994 will be similarly priced, after any necessary adjustment for inflation.

Question. What was the target price of the contract awarded to McDermott Shipyard for the three fiscal year 1989 ships?

Answer. The target price (includes onboard repair parts and technical manuals) for the three fiscal year 1989 T-AGOS ships was $61,689,444, or $20,563,148 per hull. The fiscal year 1989 T-AGOS 20-22 were option ships to the fiscal year 1987 T-AGOS-19 lead ship contract, which was awarded at $25,424,347 to McDermott Shipyard.

SPECIAL OPERATIONS FORCES PATROL BOATS

Question. Last year $100 million was appropriated for procurement of Special Operations Forces patrol boats. Is the request for procurement a full and open competition as called for by report language?

Answer. Yes. The Request for Proposal, dated 31 March 1989, was released to all interested shipyards.

Question. What is the status of the procurement?

Answer. Technical proposals are due on 14 June 1989.

[CLERK'S NOTE.—End of questions submitted for the record.]

WEDNESDAY, MAY 10, 1989.

SPARE PARTS MANAGEMENT

WITNESSES

JAMES H. REAY, DIRECTOR OF SUPPLY MANAGEMENT, OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE FOR PRODUCTION AND LOGISTICS

MAJ. GEN. MARVIN D. BRAILSFORD, U.S. ARMY, COMMANDING GENERAL, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND

REAR ADM. ROBERT M. MOORE, U.S. NAVY, ASSISTANT COMMANDER FOR INVENTORY AND SYSTEMS INTEGRITY, NAVAL SUPPLY SYSTEMS COMMAND

MAJ. GEN. EDWARD R. BRACKEN, U.S. AIR FORCE, DIRECTOR OF LOGISTICS, PLANS AND PROGRAMS, HEADQUARTERS, DEPARTMENT OF THE AIR FORCE

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This morning we will discuss issues relating to the funding and management of spare parts in the Department of Defense. This is a big and extremely complex program area, involving more than five million parts and inventory valued at $100 billion.

This Committee knows full well that it does little good to buy sophisticated new weapons systems wtihout the spare parts needed to keep them operating. We have supported readiness issues in the past and will continue to do so. We do not want a return to the hollow forces we had in the 1970's. However, there has been a tremendous buildup of spares during the 1980's. Today we will examine what we have received for that investment. We want to hear what the effect has been on readiness, on mission capable rates and on long supply assets, among other indicators.

We are pleased to welcome today Mr. James H. Reay, Director of Supply Management, Office of the Assistant Secretary of Defense for Production and Logistics; Major General Marvin D. Brailsford, U.S. Army, Commander of Armament, Munitions and Chemical Command; Rear Admiral Robert M. Moore, Assistant Commander for Inventory and Systems Integrity, Naval Supply Systems Command; and Major General Edward R. Bracken, U.S. Air Force, Director of Logistics, Plans and Programs, Headquarters, U.S. Air Force.

We welcome you gentlemen this morning. Your full statements will appear in the record.

This Committee, as you know, has a longstanding interest in the spares situation. I have visited numerous Air Force wings and Navy ships and Army installations throughout the country and there is no question in my mind that the spares situation is a lot better than it was several years ago.

As a matter of fact, we probably took the lead in putting money into the spares situation early on. I remember adding lots of money into spares when one of our trips indicated that we saw half our combat aircraft redlined because of lack of spare parts and ships deployed were trading spare parts with ships that were coming in. Every kind of maneuver you could possibly find was being used in order to keep a small percentage of airplanes up and, of course, we were having a lot more crashes in those days so we were probably using planes more often and we weren't training as often as we are now.

I certainly have to say, I have seen the opposite in visiting the various installations throughout the country. When I visited the B-1 command at Dyess Air Force Base, they had one airplane that was redlined because of spare parts and it wasn't a problem, it was just a normal redline.

I was down not long ago to the Tactical Air Command and they had one or two airplanes redlined, but there seems to be enough volume of spare parts. Now we maybe see the opposite where we are having a managerial problem. We might have overestimated the number of spares that we need, and they are lasting longer, I am not sure what the problem is.

We are interested to hear since it is such an important part of our overall defense budget.

I want to say, we on this Committee don't want to cut back on the readiness of the forces because of lack of spare parts and it usually takes three or four years before you can see a difference. In other words, when we stop funding four or five years down the road, we start seeing the problem.

I told Secretary Cheney the other day I have to know which direction he is going in the numbers of troops and units that he wants to put out in the field in order to meet his mission so that we can fashion our budget to make sure we support that mission. Of course, he is working in that direction. We need to know the same thing from you gentlemen.

We appreciate hearing from you and we would like to get an indication if we can slow down some of the money in certain areas so we could use it someplace else or if you have a problem in a specific area we would like to know so we can make sure we fund that area adequately.

Welcome to the Committee. Your prepared statements will be put into the record. Mr. Reay.

SUMMARY STATEMENT OF MR. REAY

Mr. REAY. I appreciate your remarks and the support of the Committee is well recognized at the Pentagon. We appreciate that continued support.

I will summarize my remarks. I would like to introduce the rest of the panel officially. On my far left is Major General Marvin Brailsford. He is the Commander of the U.S. Army Armament Munitions and Chemical Command at Rock Island. To my immediate left is Rear Admiral Robert M. Moore, the Assistant Commander for Inventory and Systems Integrity at the Naval Supply Systems Command. On my right is Major General Edward Bracken, the Director for Logistics, Plans and Programs, Office of the Deputy Chief of Staff for Engineering and Logistics at the Headquarters, United States Air Force.

SPARE PARTS INVENTORY

We appreciate the continued support of the Committee in the area of the Department's spare parts and inventory management program. Our focus today, as you have indicated, is not on ships, tanks and planes, but rather on the millions of spare parts it takes to keep these advanced weapon systems in a high state of readiness. The Department's spare parts inventory is unmatched in the public or private sector. The Military Departments and the Defense Logistics Agency manage about five million items, worth more than $100 billion in inventory.

In recent years, questions have been raised as to whether an inventory this large is really necessary. These questions are responsible concerns, requiring logical and understandable answers. On the whole, we believe the spare parts inventory is properly sized to meet our defense obligations. The DOD inventory of materiel is capable of supporting the widely varied arsenal of weapons used by United States forces.

SUPPLY AVAILABILITY

Our overall performance indicators suggest we are providing an acceptable level of support. For example, today DOD has about $1.00 of spare parts inventory for every $4.00 of weapons and other equipments in use. This ratio has held steady during the defense buildup of the 1980s. This indicator leads us to believe that spares growth has not been disproportionate with the value of weapons supported.

Another indicator, the supply availability percentage, has been rising, and is now about 85 percent DOD-wide. Supply availability is a measure of just how effective we are in filling a customer's requisition immediately upon receipt at the supply depot. These measures are positive. However, measures of how spare parts support affects the readiness of the forces in the field and at sea are the factors that count the most. My colleagues are prepared and have included in their statements indications of what is happening in direct support to the forces.

MANAGEMENT IMPROVEMENTS

In saying that the overall level of spare parts is about where it should be, I don't want to leave the impression that we can't do better. Just as there are shortages of some items, we know that there are excessive quantities of others. Furthermore, we must deal decisively with problems such as item duplication, inflated order quantities, long lead times, inaccurate inventory records and other management indicators. For each of these, we have management improvements and system changes under development to deal with these problems. We must also decide whether to stock items in the depots or to rely on commercial distribution systems. More and more we are moving toward greater use of techniques such as just-in-time delivery concepts to avoid unnecessary stocking. For items where the commercial distribution systems cannot meet our need, we must keep stock on the shelves. Maintaining exactly the right items and the right quantities of stock is a challenge because demand patterns fluctuate widely.

Our inventory managers use forecasting techniques generally accepted in the field of inventory theory to predict demands expected to occur in the future. When these demands do not materialize as predicted, we will have inventories that exceed our forecasted need for the near-term budget period. These so-called inapplicable assets, which today are about 38 percent of the total value of spare parts, are not necessarily unneeded.

EXCESS INVENTORY

A snapshot of inapplicable inventory at the beginning of fiscal year 1989 shows that about one-third of this inapplicable inventory is being retained for economic reasons, another third for military contingencies and foreign military sales. Most of the remaining retention stocks are held to support weapon systems in the active inventory. Only about ten percent of the total inventory of $100 billion is truly excess to our needs. This, however, amounts to about $10 billion. The causes of this excess inventory are receiving our close attention.

The key to improving the management of spare parts inventories is to improve our requirements by improving our information data base. We have developed a comprehensive, integrated logistics strategic planning guide to provide a common roadmap for the DOD Components. Our overall plan is called Logistics 2010, and if I may, I would like to request that a copy of this document be included in the record of this hearing.

Mr. MURTHA. Without objection.

[CLERK'S NOTE.—The information has been received and is on file with the Committee.]

INVENTORY MANAGEMENT

Mr. REAY. We also have many specific actions ongoing to improve our inventory management process. For example, one task force is searching for better methods to introduce spare parts into the inventory to support our new weapon systems. Another group is seeking improvements in the stratification system for evaluating inventory for management and budget purposes. This week we held a conference of more than 50 key logistics managers to discuss methods to reduce procurement lead-time requirements significantly.

Our most important resource in inventory management, however, is people. The example management initiatives I have described are highly dependent on the availability of talented, well qualified people. I would strongly request the Committee consider carefully our need for the people and dollars required to properly manage spare parts as part of its upcoming actions on O&M appropriations.

Mr. Chairman, this concludes my summarized statement. My colleagues are prepared to also summarize their statement or at your desire we can proceed directly to questions.

Mr. **Murtha**. Thank you.

[The statement of Mr. Reay follows:]

NOT FOR PUBLICATION UNTIL RELEASED BY THE
SUBCOMMITTEE ON DEFENSE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

STATEMENT BY

MR. JAMES H. REAY

DIRECTOR FOR SUPPLY MANAGEMENT POLICY

BEFORE

SUBCOMMITTEE ON DEFENSE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

DoD SPARE PARTS INVENTORY MANAGEMENT

MAY 10, 1989

Mr. Chairman, Members of the Subcommittee:

I am Mr. James H. Reay, the Director for Supply Management Policy in the Office of the Under Secretary of Defense for Acquisition. My office is responsible for the development and oversight of Department of Defense policies relating to the management of spare parts. My colleagues from the Military Departments and I are particularly pleased to appear before this subcommittee, since its members bear a special responsibility for matters involving national defense issues. Today we will discuss the Department's inventory program, with particular emphasis on inventory growth. Our focus will not be on ships, tanks, and planes, but rather on the millions of spare parts that it takes to keep these technologically-advanced weapon systems in a high state of readiness. These little-noticed items directly impact the ability of our Forces to carry out their missions.

In terms of its size and complexity, the Department's spare parts inventory program is unmatched anywhere in the public or private sector. We manage approximately five million items, worth slightly over one hundred billion dollars. Having the right items at hand where and when we need them is vital to the readiness and sustainability of our Forces. Maintaining a responsible stewardship in the face of such a challenge consumes our full time and attention.

In recent years, questions have been raised whether an inventory this large is really necessary. We view these questions as responsible concerns and have been working hard to explain fully the complex relationship between inventory and its effect on U.S. Forces, so that we may provide understandable answers. In our testimony, we hope to do that in non-technical, jargon-free terms.

Description of the Inventory

The Department's inventory of spare parts is often referred to as "secondary" items to distinguish them from the weapon systems and other operational items they support, which are called "principal" items. I want to mention these terms briefly because you may hear them used from time to time. As one might expect, secondary items tend to be less costly and technically complex than principal items. People sometimes have the misconception however that secondary items are basically nothing more than nuts-and-bolts, hardware-store things. Obviously, there are many of these types of items in the DoD inventory. Our objective in managing many of the more common commodities is to utilize the manufacturer's own distribution systems and to set up direct delivery type contracts permitting "just-in-time" delivery direct to the user whenever possible. We have already made these types of arrangements for commercial items such as photographic film, vehicle batteries, vehicle parts and tires. We are looking hard at other commodities to apply direct delivery and electronic data interchange technology wherever possible. Similarly, we have revised our Acquisition Regulations to allow military base commanders the opportunity to purchase from local vendors, non-weapon related supplies up to $5000 per item when price, quality, or timeliness are better served. Expanded use of these techniques reduces the DoD's requirement to stock inventory. While we certainly have many of those commercial type items, the real challenge is in the high-tech, high-cost items such as electronic parts for F-15 fire control systems or pumps for Trident submarines for which there are no commercially equivalent items. In our vocabulary, these are secondary items also. Although secondary items is a useful term to us in the Department, I will stick to the term "spare parts" for simplicity.

You may also hear another specialized term used in discussions of spare parts. That term is "inapplicable assets." Again for simplicity, inapplicable assets are spare parts in the inventory that are not expected to be needed during the next twenty-four month budget development period if forecasts of future customer demands are accurate. These terms are a convenient way to describe a snapshot of our inventory during a given budget period. When people express concern about inventory growth, generally they are referring to items in our warehouses that exceed our forecasted need for the near term budget period. I want to emphasize that these so-called inapplicable assets include many items that were purchased in the past for a specific need, were used to satisfy that need, and are now in an unserviceable condition. The Government received full value from the purchase of these items, and the unserviceable carcasses are being retained for future repair if demands occur. Inapplicable assets are not an unequivocal sign of "unneeded" or bad inventory, nor are they an indication that items should be disposed of immediately. In fact, most of this materiel is held for reasons that make sense both militarily and economically. If there is one thing we try not to lose sight of, it's that our customers can be thrust without notice into life-threatening situations. We do not want the weapons they rely on to be inoperable because of parts shortages. Additionally, once we have made the investment in inventories, we will not arbitrarily dispose of items that are excess to our needs if there is a reasonable expectation that we will use the items to satisfy future requirements.

To help us manage the spare parts inventory, we divide it into several categories. The most important category (technically known as Approved Force Acquisition Objective) encompasses day-to-day operating requirements and war reserve stocks. These are the items we need to conduct business or, as we say, to carry out our mission. The value of this portion of the inventory is approximately $64 billion, which represents 62 percent of the total inventory. This part of the inventory is referred to as "applicable" since it supports a specific requirement within the budget period. Annually, we spend about $18 billion to procure items in this category to maintain current and new weapon systems.

The remaining 38 percent of the inventory is referred to as inapplicable. As I mentioned before, this means there is no specific requirement for the item within the budget period. There are four retention categories within the inapplicable segment of our inventory, and it is the stocks within these categories that are sometimes identified as being unnecessary. We disagree with these claims and would like to explain our position on this issue for the benefit of the Committee.

The first category is Economic Retention Stock, valued at about $10 billion. Items enter this category when expected demands do not materialize and we must make an economic decision on whether to keep or dispose of them. This is basically a mathematically-derived figure used to develop economic criteria for holding items to meet future peacetime requirements. Variations in forecasted demand are a fact-of-life in DoD. The causes are many, one being budget adjustments that affect programs, such as the flying hour program, and impact the need for spare parts. Variations in demand are also caused by positive factors, such as improved weapon system reliability, that cause a decrease in the requirement for spare parts. We do not request any funds in our budget to buy Economic Retention Stock.

The next category, valued at approximately $11 billion, is called Contingency Retention Stock. Spare parts are held here to meet potential military or civil contingencies, or are earmarked for foreign military sales. The contingency retention category allows us to hold assets that do not meet standard economic criteria but clearly are useful based on our best professional judgment. We do not request any funds in our budget to buy Contingency Retention Stock.

The third category is Numeric Retention Stock, at $4 billion. These may be stocks that have been used and are now in need of repair. They also may be stocks excess to all identified requirements but held because disposal may not be prudent due to reprocurement difficulties, high dollar value, long lead time and so on. Items in this category are under regular management review to determine if any unusual factors are at work before a repair or disposal decision is made. We do not request any funds to buy Numeric Retention Stock.

The last category is Potential Excess Stock, valued at approximately $10 billion. This is stock excess to all authorized retention levels, but being held pending the processing of paperwork necessary to send it to a disposal facility. I want to emphasize that this is the only category of stock which is truly excess to the needs of the Department. As with the previous categories, we do not request funds to buy Potential Excess Stock.

Growth Trends

The total DoD spare parts inventory grew from $43 billion in 1980 to $103 billion in 1988. We track this growth against a variety of management indicators to see if we are getting value for our money, and we are. I will touch briefly on a few points to give you an idea of what the figures show. However, these are only abstractions. The indicators that count the most are the real-life examples of how the spare parts inventories affect readiness. My colleagues are prepared to address those areas.

One interesting comparison is the ratio of spare parts to weapons and other equipment in use, such as tanks, ships, and planes. The investment in these parts should track closely with the growth of weapon systems in the field. Our information shows an almost exact relationship of one dollar worth of spare parts for every three dollars worth of weapons in use. This ratio has remained constant over the defense build-up of the 1980's. We realize this is a macro-level measure and that there are individual spare parts in excessive quantities. However, it is a valid counterpoint to the generalized claim that we have more spares than we need.

Another measure is the ability of the supply system to fill customer requisitions immediately upon receipt at the supply depots. This is called the supply availability rate, and it currently is in the mid-eighty percent range and is improving. This, again, is a macro-level measure that indicates the supply system is quite responsive to the materiel requirements of the forces.

However, there are some trends that are not favorable. For example, both numeric retention and potential excess stock categories are increasing. This indicates that we are holding items that probably should be moving into the disposal yards. We are working with the Services to streamline this process. Obviously, with the bad publicity of recent years, the Military Services are hesitant to dispose of spare parts which possibly could be needed for future use.

Item Entry

In an effort to deal with growth, we are making a systematic review and evaluation of the way items are introduced into the inventory. Provisioning is the process of determining the range and quantities of spare parts needed for a new weapon system to operate successfully for an initial period of service. This process predicts the kinds and numbers of spare parts that are needed before enough actual demand experience occurs to effect normal replenishment. The objective is to predict what items are going to fail and how often, so we can get the right item in the inventory in the right amounts at the right time. If we don't select the right items or if we purchase incorrect quantities, we can't maintain equipment in a ready condition. On the other hand, if we buy the wrong items or too many of the right ones, we place a needless burden on the logistics system in that we are holding inventory that may not be used. Of course, we also incur unnecessary costs.

The Under Secretary of Defense (Acquisition) has recently directed a DoD-wide review of the provisioning process. This review, which began in March 1989, covers three major areas: engineering estimates of reliability, requirements determination, and item identification data. The engineering estimates segment will determine ways to improve predictions on how long a weapon system is expected to operate before spare parts are needed to repair the system. The requirements determination segment will look for better methods for predicting how many spare parts to order and, equally important, when to order these parts. This is a key factor because prematurely-ordered parts become obsolete before they can be used if the design of the weapon system changes. The item identification segment of the review will seek better methods to avoid duplication by matching spare parts already in the DoD inventory against new parts that are recommended by contractors. We expect to complete our provisioning process review in September of this year.

Federal Catalog System

At the beginning of my statement I mentioned that we have nearly five million items in our system. Keeping track of this many items to prevent duplication, to know what their applications are, and to describe them in accurate technical terms requires a highly sophisticated cataloging system. We have such a system and I believe it is important enough to warrant mention. The Federal Catalog System was created by Public Law in 1952 to create a single, uniform system of item identification to describe, classify, and number each item of supply so that it is identified with a single National Stock Number. Preventing the assignment of more than one stock number to the same item of supply is key to reducing inventory growth.

The Federal Catalog System is becoming increasingly capable of preventing duplicate items from entering the DoD inventory. We are raising our emphasis on the use of Approved Item Names when adding new items, encouraging contractors to provide more descriptive information for their items, and including as many sources and part numbers as possible. Adherence to these principles improves the data base and thereby increases the probability of matching an existing item when new item requests are submitted. We are also developing new edits to screen incoming transactions based on a "root" part number. This concept recognizes that some manufacturers assign different part number modifiers for the same item to designate weapon system application, modification number, and so on. Present edits would assign two different National Stock Numbers for this item because the part numbers are not identical although the "root" part numbers are the same.

Several programs are presently in place that have as their goal the prevention or elimination of duplicate items. The DoD Parts Control Program screens proposed new parts early in the acquisition process to identify items already in the inventory that meet the necessary engineering requirements. Screening allows contractors to compare their part numbers against the Federal cataloging file to identify parts already having National Stock Numbers. More than a third of the part numbers submitted match existing items. The Interchangeability and Substitutability program has grouped over 300,000 items into families of related items to purge from the inventory "less preferred" items in favor of the family "master" item. Each year the Inventory Control Points conduct Item Reduction Studies, which are technical reviews of items already in the inventory to uncover duplicates.

Requirements Computation

After a spare part enters the system through the provisioning and cataloging process, it is assigned to one of nineteen inventory management organizations located at various facilities in the United States. The inventory management organization becomes the single point for controlling procurements and issues of that item.

Several times each year, the inventory management organization will take a detailed look at the status of each item in the requirements system in order to determine budget requirements and procurement strategies. This process is called stratification. Essentially, stratification is a computer-assisted process for permitting analysis based on projected demands by customers and comparing that projection to the quantities of stocks that are available. If more stock is available than is projected to be needed, the "overstock" is divided into the retention categories I described previously. On the other hand, if a procurement is necessary the inventory manager will review other factors: for example, what's been the item's demand history; is the operating tempo of the weapon system changing; is a change in technology looming; should a large buy be made to take advantage of a price break? The point I want to make is that requirements are computed on an item-by-item basis using currently accepted academic and commercial principles of inventory management.

Reasons for Increased Stock Levels

In light of all of these controls, it is fair to ask how it is possible to have extra stocks on the order of magnitude of several billions of dollars. As I mentioned previously, the historic ratio of the increased value of spare parts to the increased value of weapon system has remained relatively constant over the past decade. However, through more intensive review of the inventory management process, we have identified some weak spots that have to be improved.

Perhaps up to a quarter of our extra stocks exist because we bought or repaired more than was necessary. I want to emphasize however, that when the decision to buy or repair was made, the projected demand warranted the action. It is only when demand changes after the fact that the inventory migrates from needed to unneeded. About a fifth of the extra stocks are the result of phasing-out weapon systems and other major items. About ten percent may be attributable to invalid estimates of special program requirements. Special programs are one-time programs that do not have a demand history upon which to base requirements projections, such as revisions to maintenance plans or weapon system modifications. Another ten percent is due to an unexpected decline in item demand. Five percent may be tied to incorrect provisioning estimates. There are other lesser factors such as unexpected returns of spare parts to our depots from the field, buying more than is immediately needed to take advantage of quantity discounts, or buying the last production run of stock when a manufacturer notifies us that he is discontinuing the item.

Management Improvement Initiatives

We believe the key to improving management of spare parts inventories is to improve our information data base by having the best automated systems possible that will provide inventory managers with solid data as quickly as it is needed. We knew that to attain this objective, we needed a comprehensive, integrated logistics strategic planning guide for the Department. Our plan has been developed and promulgated. It is called *Logistics 2010,* and if I may, I would like to request that a copy of this document be included in the record of this hearing.

A concept that stems from the Logistics 2010 plan is the idea of concentrating inventory management resources and focus on the most important weapons systems. We have established a Weapon System

Management Concept to give inventory managers the tools to give full consideration to the impact of their decisions more directly on the readiness of weapon systems.

I have described the work we are doing to improve provisioning. We have a similar effort on-going with the stratification process. As I have indicated, stratification is a complex technical process for dividing the inventory into manageable parts for inventory review and budget development purposes. A task group is at work currently and will issue a revised DoD regulation by late summer. The Department's capability to plan and budget for materiel will be greatly enhanced by the improvements to the stratification process.

Two other DoD-wide automation improvements are well underway. One is the MODELS Program. MODELS is an acronym for Modernization of Defense Logistics Standard Systems. It will provide a state-of-the-art telecommunications and data processing capability to handle the enormous numbers of transactions that are processed against our five million items each day.

The other area of automation improvement involves the application of bar code technology and microcircuit devices that help us apply commercial practices to keep track of our items. We are also teaming-up with industry in automating the exchange of engineering drawing and data information to reduce the paperwork burden on the inventory managers.

People

I would be remiss in this testimony if I failed to mention the close interface of the inventory management process with the people who operate that process. I have discussed the importance of automation to our plans for improving the logistics system. Of even more significance are our people resources. Today, these people, mostly civilians, conduct the daily inventory management, depot operations and procurement operations which are a key element of the logistics process. Keeping the system working at peak efficiency is their daily responsibility. A significant portion of the Department's Operations and Maintenance (O&M) budget pays for these services. Our inventory management operations are sized to achieve the desired level of support to the operating forces. To the degree that inordinate reductions are made to O&M inventory management resources, military readiness will be degraded. Automation offsets only a small portion of unbalanced reductions because while automation usually reduces the number of people doing routine, mundane tasks, it often creates a requirement for more skilled, higher paid personnel to manage the automation programs. Further, the management initiatives I have mentioned are highly dependent on the availability of talented, well-qualified people. I would strongly request that the Committee in its upcoming deliberations on the DoD budget look closely at our need for people and dollars required to properly manage the inventory as part of your actions on the O&M appropriations.

Summary

I believe that DoD is generally in good shape in its inventory program. The money provided by Congress is being spent prudently to ensure that the right spare parts are in place to support the military forces. We know that the system is not perfect and that mistakes and poor decisions can be cited by our critics. However, I hope I have shown that we have sensible, responsible initiatives ongoing to deal with our problems. The resources to make the system work and to initiate needed management improvements are in place but are stretched to the limit. We are working hard to keep inapplicable assets to a minimum, but they will never be permanently eliminated. To some degree, these assets may be a cost of doing business, where the business is the defense of the United States. I wish, however, to assure this Committee that the DoD logistics establishment is doing its best to use available resources in the most effective manner possible, to improve the process, and to achieve the best possible materiel support to the Nation's fighting forces.

Mr. **Murtha**. General Brailsford.

Summary Statement of General Brailsford

General **Brailsford**. Thank you, Mr. Chairman. Again, I am pleased to have this opportunity to discuss the Army's inventory management program and its impact on our readiness to go to war.

I am Major General Marvin D. Brailsford, Commander of the U.S. Army Armament, Munitions and Chemical Command at Rock Island, Illinois. I am responsible for the management of armament, fire control equipment, large and small caliber weapons, and all types of munitions—conventional, nuclear and chemical.

Many of my remarks will be related to testimony given on 23 March 1989, concerning inventory growth which was provided by Major General Murray, Office of the DCSLOG, DA, to the Readiness Subcommittee of the House Armed Services Committee.

The Army's Logistics System is designed to sustain our soldiers anywhere in the world. In support of its operations, the Army uses over 1.2 million individually identified items. These items include major items, such as helicopters and tanks, medical materiel, individual clothing, rations, munitions, and spares and repair parts.

Inventory management of the Army's weapon systems and support items is the responsibility of the U.S. Army Materiel Command.

The total inventory is comprised of two categories—major and secondary items which are primarily spares and repair parts needed to repair the major items. The inventory is managed by six national inventory control points of which I manage one and stored in fifteen depots located in ten states.

INVENTORY GROWTH

The focus of my testimony will be on the growth of the inventory of secondary items and the positive effect on this growth on readiness. This becomes all the more important as we move into a period of more austere budgets. Our on-hand and on-order inventory investment for spares has increased by 53 percent and repair parts by 32 percent since 1984.

The Army's effort to modernize our force is the largest single contributor to this inventory growth. Throughout this decade, with your support and that of the Administration, our Army has undergone a modernization unprecedented in our Nation's history. We have upgraded our weapon systems with modern, state-of-the-art technological systems. This successful modernization effort directly translates into a stronger warfighting capability.

I would like to emphasize the Army's modernization strategy involves the displacement and retention, not disposal, of many major weapon systems and their related parts. As the new systems are fielded, displaced weapon systems are moved from the active force to the Reserve component, war reserves, or retained for foreign military sales.

The Army's need to continue logistics support for both the new and displaced systems adds to inventory growth. For example, in my own command, we fielded the M8A1 chemical alarm which replaces the M8 alarm. We are retaining $20 million of components in our inventory for support of the old system until it is totally phased out.

Another example is $17 million of parts for the M551 Sheridan weapon system are being retained in depot storage until the Sheridans are out of the inventory. The reconfiguration of the M60 series tanks to M60A3 has generated $20 million in inapplicable inventory which is being held for Reserves, other services and foreign country support.

RETENTION AND DISPOSAL POLICY

Another major factor influencing the increased dollar value of the Army's inventory is the implementation of more stringent Department of Defense retention and disposal policy. Department of Defense Directive 4100.37 requires retention of assets that are serviceable or economically reparable, and have application to a weapon system in active use by U.S. forces. This retention provides on-hand assets to fill future forecasted and unforecasted needs.

A key point is that asset categorization can change rapidly from applicable to inapplicable and vice versa. This occurs because of demand fluctuations, changes to deployment or force structure or as in the case of Sergeant York, we currently have $112 million of inapplicable inventories as a result of the decision not to field the system after many of the initial spares and repair parts had been procured.

SUPPLY AVAILABILITY

I would now like to share with you some of the positive effects of the inventory growth on readiness and sustainability. Supply availability measures the ability of our national inventory control points to issues when a requisition from the soldier is received.

In other words, "Is the materiel available for immediate issue?" In fiscal year 1988, we maintained an 88 percent stock availability for our repair parts, exceeding the 85 percent goal. Over the last five years, an even more significant accomplishment was an increase of 12.2 percent in stock availability for our spares.

As an example, in AMCCOM during fiscal year 1983, we determined that our stockage levels were programmed to provide approximately 65 percent stock availability for spares and 60 percent for chemical protective equipment. Action was taken to increase these stockage levels which enabled us to maintain 89 percent stock availability for repair parts and over 90 percent for spares for the last two years. These increases, while remarkable in themselves, were even more impressive when considering the fact that the Army has introduced a number of new systems into its force during this period.

APPLICABLE VS. INAPPLICABLE INVENTORY

In terms of our applicable versus inapplicable inventory, 74.6 percent of AMC's total secondary items inventory in fiscal year 1988 was applicable, a six percent increase since fiscal year 1984. Seventy-eight percent of our spares inventory was applicable. We view this as a success story in as much as we have built our applicable inventory while also reducing our annual funding for new procurements by 24 percent since fiscal year 1984.

The Army Materiel Command continuously tracks fully mission capable rates for 398 major items of equipment in the hands of our soldiers, representing over 400,000 individual items, for the purpose of pinpointing and correcting short- and long-term equipment problems which impact materiel readiness. Total Army FMC rates experienced a slight upward trend through fiscal year 1987, with a high in the third quarter of 92.1 percent. Since that time, FMC rates have been holding steady between 90.4 and 91.8 percent. The overall goal is 90 percent, so you can see that, so far, we are still holding our own.

I must emphasize, however, that I am concerned with our future as the effect of constrained resources in fiscal year 1988 and outyears is felt. The fiscal year 1988 supply program was executed at 20 percent below the fiscal year 1987 level while fiscal year 1989 supply program funding is 17 percent less than our requirements. Your continued support is essential to maintain the great strides we have made in increasing our readiness and sustainability.

INVENTORY MANAGEMENT INITIATIVES

Notwithstanding the progress made, there is still room for improvement. We have several initiatives underway in AMC to improve inventory management and support to the soldier. The Army Materiel Command chartered a provisioning panel to review our initial provisioning program. The panel is developing appropriate policies, procedures, and action plans to identify any deficiencies as a result of the review. The review is scheduled for completion July 1989.

The Commodity Command Standard System, as part of the provisioning requirements system, now has the selected essential item stockage to availability method, SESAME, model. This model optimizes our stockage selection based on the readiness goal of the weapon system.

The Army Materiel Command is pursuing several enhancements to its requirements determination and budget stratification systems. The weapon system Supply Performance Analyzer allows us to set different supply availability targets for mission essential and non-essential items that are in the replenishment stage of the life cycle. This assists by allocating resources to the most critical items in making procurement and repair decisions.

Wholesale level asset visibility of retail stocks is being enhanced. The Army is developing improvements to the selected item management system, expanded, SIMS-X. This system provides item managers with vertical visibility of selected high dollar and critical readiness items.

The Army Materiel Command is pursuing innovative techniques to reduce administrative and production leadtimes. We are now routinely obtaining competitively priced options, procuring spare parts concurrent with production, utilizing requirements-type contracts and combining buy requirements for like items whenever possible.

Additionally, competition in contracting has been the cornerstone of our program to buy smart. This past year, AMC achieved unprecedented success by competing 44 percent of our dollars, compared to 34 percent in fiscal year 1985, the inaugural year of the competition in Contracting Act. We estimate a savings of 20 to 25 percent compared to their contracting methods.

SUMMARY

In summary, the logistics of ensuring our soldiers are ready to fight is a complex business. I hope my testimony has demonstrated the successful management of spares and repair parts in the Army and the assurance that we have allocated our resources wisely. The force modernization of the Army and our high state of readiness could not have been accomplished without the support of the United States Congress and this Committee.

The Army is appreciative of this support. As we move into a period of austere funding, wise stewardship of our resources and innovative thinking become even more imperative. The Army is fully committed to meeting this challenge, and looks forward to the continued support of the House Appropriations Committee.

Sir, this concludes my summary. I will be happy to respond to any questions. Thank you, Mr. Chairman.

Mr. MURTHA. Thank you, General.

[The statement of General Brailsford follows:]

STATEMENT OF MG MARVIN D. BRAILSFORD

INTRODUCTION

Mr. Chairman and members of the House Appropriations Committee, I am pleased to have this opportunity to discuss the Army's inventory management program and our readiness to go to war.

The United States Army is the best equipped force in the world. The logistics system supporting this force ensures our 772,000 active duty soldiers and 776,000 reserve component soldiers are always ready to fight and fit to win. If they must fight, the logistics system will sustain our soldiers anywhere in the world.

In support of its operations, the Army uses over 1.2 million individually identified items. These items include major items, such as helicopters and tanks, medical materiel, individual clothing, rations, munitions, and spares and repair parts. The Army manages over 416,000 of these items as the Department of Defense Integrated Materiel Manager. The balance of our support is provided by the Defense Logistics Agency, the General Services Administration, and the other Services.

Inventory management of the Army's weapon systems and support items is the responsibility of the U.S. Army Materiel Command. The total inventory is comprised of two categories - major and secondary items which are primarily spares and repair parts needed to repair the major items. The inventory is managed by six National Inventory Control Points and stored in 15 depots located in 10 states.

The inventory managers utilize an automated system, the Commodity Command Standard System (CCSS) in managing the secondary items. The Requirements Determination and Execution System within CCSS is the basis for all supply management decisions. Each time the process is run, items are activated for study based on various criteria, i.e., changes to assets or requirements, new items in the catalog, or at a minimum annual review. Any item that is coded reparable would forecast a repair of unserviceable assets to satisfy a total requirements objective if unserviceables are forecast in sufficient quantity. The system is designed to recommend the repair of an item before a procurement would be recommended. A procurement action is recommended only if insufficient quantity is forecast for return or to cover washout.

INVENTORY GROWTH

The focus of my testimony will be on the growth of inventory of secondary items and the positive effect of this growth on readiness. This becomes all the more important as we move into a period of more austere budgets.

The inventory is comprised of both applicable and inapplicable stocks. Applicable stocks are those for which we have a current requirement, known as the Approved Force Acquisition Objective. Inapplicable stocks are items above the Approved Force Acquisition Objective which we continue to hold to fill future forecasted and unforecasted demands. The Army's retention policy is in full compliance with Department of Defense Directive 4100.37, "Retention and Transfer of Material Assets".

Since fiscal year 1984, the growth in Army inventories has been influenced by a 14 percent increase in the number of stocked high cost reparable components and assemblages required to sustain our modern weapon systems on the battlefield. Although the number of stocked consumable items has remained relatively constant, we have also increased investments in that area for requirements in support of the repair of these assemblages and our modernized fleet of end items. Accordingly, we have supported a 53 percent growth in our on hand and on order inventory investment for components and assemblages as well as a 32 percent growth for consumable items. Today, almost 61 percent of our on hand inventory is made up of assemblages that can be recycled through the wholesale inventory for depot repair and returned to the supply system as opposed to 54 percent in fiscal year 1984. For these high-cost items, the standard system automatically forecasts to repair in lieu of procurement. An additional investment is required to procure the consumable items needed to support the repair process. Also, we continue to work on optimizing our inventory of inapplicable or long supply assets which now make levels by six percent since fiscal year 1984.

There are some legitimate reasons for the Army's inventory growth. They include force modernization, improved stockage of required parts, changes in retention policy, the need for life of type buys, and inflation.

FORCE MODERNIZATION

The Army's effort to modernize our force is the largest single contributor in inventory growth. Throughout this decade, with your support and that of the administration, our Army has undergone a modernization unprecedented in our Nation's history. We have upgraded our weapon systems with modern, state-of-the-art technological systems. This growth is indicative of the significant increases we had in the end item densities of our modernized weapon systems. For example, during this 5 year period the Army had a 469 percent increase in our M1 tanks, a 1328 percent increase in our Bradley Fighting Vehicles, a 158 percent increase in our BLACK HAWK helicopters, and the introduction of the APACHE attack helicopter. These and other systems being introduced have no technological match in the armies of our potential adversaries. This successful modernization effort directly translates into a stronger war-fighting capability. During this timeframe the number of Army managed individual National Stock Numbered items (including both major assemblies and consumables) required to support this modernization effort increased 18 percent from 338,000 to 399,000 items.

I would like to emphasize: The Army's modernization strategy involves the displacement and retention, not disposal, of many major weapon systems and their related parts. As the new systems are fielded, displaced weapon systems are moved from the active force to the reserve component, war reserves, or retained for Foreign Military Sales. The Army's need to continue logistics support for both the new and displaced systems adds to inventory growth.

An examination of one major weapon system will provide insight into the dynamics of our force modernization program and the impact on inapplicable inventory. For this purpose, I will discuss the CH-47 helicopter. The inapplicable inventory at the Aviation Systems Command (AVSCOM), is currently $950 million. The long supply position for this aircraft is directly attributable to decreases in aircraft density and flying hours as the older CH-47 models are inducted into the CH-47D modernization program. Most of the items have not been procured since the Vietnam era. Three hundred and eighty-one million dollars ($381M) of these long supply assets, including $272.4 million aircraft engines and transmissions alone, are applicable only to the older models of the CH-47. These assets are being disassembled to recover components reusable on the "D" configuration, sold to foreign military customers, or turned in to disposal. Forty-six million dollars ($46M) in assets can be reworked to the new configuration and are being used to offset procurement requirements.

RETENTION LEVELS

Another major factor influencing the increased dollar value of the Army's inventory is the implementation of more stringent Department of Defense retention and disposal policy. As I mentioned earlier, Department of Defense Directive 4100.37 requires retention of assets that are serviceable or economically reparable, and have application to a weapon system in active use by U.S. Forces. This retention provides on-hand assets to fill future forecasted and unforecasted needs. There are three approved retention levels: Economic Retention, Contingency Retention, and Numeric Retention.

Economic Retention is that quantity determined to be more economical to retain for future peacetime issues instead of replacement by procurement. It is categorized as demand-based retention stock. Items in this category must have a reasonably predictable demand rate, and a cost to hold less than the future cost to procure.

Contingency Retention is the level for which there is no predictable demand or quantifiable peacetime requirement. This stock would normally be allocated as potential excess stock, but specific considerations or potential use in contingencies justify retention. Examples of special considerations are assets retained to meet potential military contingencies for U.S. Forces, assets retained in expectation of foreign military demand not covered by Cooperative Logistics Supply Support Agreements, and/or special considerations involving non-military contingencies (that is, civil emergencies, or natural disaster relief).

Numeric Retention is the level retained against error in economic and contingency forecasts. This is necessary for low-demand items with long supply assets because the future is unknown. Assets may be retained based on special management decisions recognizing economic reasons, potential use, market non-availability, weapon system application or storage capacity.

A key point is that inapplicable assets can be rapidly drawn into applicable stocks. This occurs because of demand fluctuations, changes to deployment or force structure and insures the availability and utilization of assets as requirements develop.

INITIATIVES

I would not like to address initiatives that AMC is developing to improve its support to the soldier. During the provisioning phase we develop the initial logistics support for new equipment. This is the most volatile and challenging period of a weapon system life cycle. During this period, we must synchronize the availability of spares and repair parts, tools and test equipment, technical manuals, training, personnel and facilities, with the weapon system's production schedule. The complexity of the provisioning process is made even more difficult by its inherent unpredictability. Our requirements for secondary items are based on estimated engineering reliability factors, an imprecise science at best, especially in the area of electronic equipment. Greater than forecasted reliability, changes in maintenance task allocation, configuration changes as we enter production, and slippages in production can all result in inapplicable inventory. Conversely, less than anticipated reliability, changes in maintenance task allocation, configuration changes and acceleration of production may result in shortages of critical parts. Providing the right parts, at the right time, at the right place, is always a difficult equation to solve. The uncertainties inherent in developing the initial logistics package for a new weapon system make finding the right solution for this equation even more difficult.

PROVISIONING

The Army Materiel Command's panel on Provisioning was charter last year as a Total Quality Management initiative to review our initial provisioning program. This panel's review will be completed by July 1989. The panel's focus is on a total quality management review of the provisioning process. This will include information provided by audits, studies, and panel members. The panel will develop appropriate policies, procedures, and action plans to identify any deficiencies identified as a result of the review.

The Commodity Command Standard System, as part of the provisioning requirements system, now has the Selected Essential Item Stockage to Availability (SESAME) model. This model optimizes our stockage selection based on the readiness goal of the weapon system. It considers all mission essential items required to support the weapon system in determining the types and quantities of items to be stocked for systems being planned for deployment. Another provisioning enhancement was the establishment of the Central Demand Data Base in 1987. This data base captures actual demand data for secondary items and will be used to update the original engineering estimated failure factors. In turn, this assures forecast accuracy in parts requirements.

The Army is also participating with the Office of the Secretary of Defense and the other services in a review of the provisioning process. This effort is focusing on improving the up front identification of secondary items and methods of minimizing the initial investment in support of new weapon systems. It is also providing an important forum for the sharing of lessons learned between the services.

REQUIREMENTS DETERMINATION AND BUDGET STRATIFICATION

The Army Materiel Command is pursuing several enhancements to its requirements determination and budget stratification systems. The Weapon System Supply Performance Analyzer (SPA) allows us to set different supply availability targets for mission essential and non-essential items that are in the replenishment stage of the life cycle. This assists in allocating resources on the most critical items in making procurement and repair decisions. With the advent of Artificial Intelligence technology an Expert System "Item Manager

Assistant" was developed to train inventory managers by guiding them through the requirements determination process. Besides providing training, the expert system will identify inconsistencies in the requirements system data base and provide recommendations for corrective actions. The implementation of the Supply Management Data Base will allow inventory managers to perform on-line supply control studies versus scheduled batch mode processing. It will provide the capability to evaluate the options required to automatically update the requirements determination data base. The Army is also participating with the Office of the Secretary of Defense major redesign of the budget stratification process which will incorporate the two year budget submission and improve the accuracy of budget forecasts.

ASSET VISIBILITY

Wholesale level asset visibility of retail stocks is being enhanced. The Army is developing improvements to the Selected Item Management System - Expanded (SIMS-X). This system provides item managers with vertical visibility of selected high dollar and critical readiness items. Every transaction posted to the retail stock records is automatically transmitted to the wholesale level and recorded in the Inventory Control Points' data base. In the past, inclusion of items in this program was optional and there was limited use of the data in making supply management decisions. In December 1988, the Army approved mandatory selection criteria for inclusion of items in the program and a system change request was initiated to allow the automatic reject or challenge of requisitions. Future enhancements will focus on determining how to use effectively the data in repair and buy decisions, as well as asset redistribution.

ACQUISITION

The Army Materiel Command is pursuing innovative techniques to reduce administrative and production leadtimes. We are now routinely obtaining competitively priced options, procuring spare parts concurrent with production, utilizing requirements type contracts and combining buy requirements for like items whenever possible.

Additionally, competition in contracting has been the cornerstone of our program to Buy Smart. This past year, AMC achieved unprecedented success by competing 44 percent of our dollars, compared to 34 percent in fiscal year 1985, the inaugural year of the Competition in Contracting Act (CICA). We estimate a savings of 20-25 percent compared to other contracting methods.

A big payoff program in terms of savings is Breakout. The Breakout process involves screening technical data for spare parts which have historically been procured noncompetitively. The objective is to buy directly from the actual manufacturer cutting out the middlemen and their price mark-ups and processing costs or to procure the item competitively. The Army Materiel Command has accrued $774 million in savings since the Breakout program was formally instituted in fiscal year 1984.

Another spare parts initiative which offers potential for considerable cost avoidance is reverse engineering. Its purpose is to develop technical data packages (TDPs) for competition for items historically procured noncompetitively. Results to date indicate a project return on investment of 3 to 9 over the next 5 years.

Another program effectively used to conserve our limited resources is the AMC value engineering (VE) program which saves hundreds of millions of dollars each year in our procurement accounts. Through our aggressive VE program, we continually challenge both our contractors and government technical personnel to submit their cost savings changes. In fiscal year 1988, the program accounted for current year savings and cost avoidances of $739.2 million. Savings from AMC's value engineering program typically constitute 95 percent of the Department of the Army value engineering program and 30 percent of the Department of Defense value engineering program. For this reason, AMC has been selected to the task team leader for the "revitalized value engineering" program, one of OSD's initiatives to provide incentives to defense contractors and reduce overall weapon systems procurement costs.

The Army's policy is to request voluntary refunds in all instances of suspected overpricing of spare parts. The Army Materiel Command received $900 thousand in refunds in fiscal year 1988. Since fiscal year 1984, almost $8 million in refunds have been received by AMC.

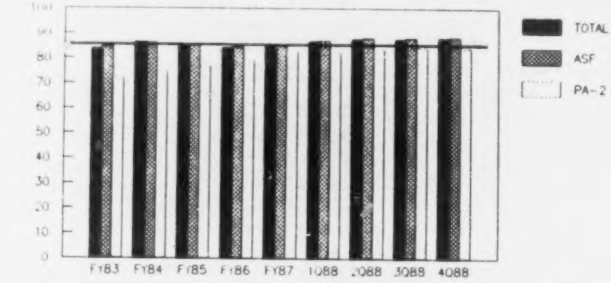
OBJECTIVE SUPPLY SYSTEM

The Army is exploring a concept called the Objective Supply System which will aid in management of the spare parts program.

ACHIEVEMENTS

Finally, I would like to share with you some of our accomplishments. Readiness and sustainability have improved significantly. Supply availability measures the ability of our National Inventory Control Points to issue when a requisition from the soldier is received. In other words, is materiel available for immediate issue. In fiscal year 1988, we maintained an 88 percent stock availability for our repair parts, exceeding the 85 percent goal. Over the last 5 years, an even more significant accomplishment was an increase of 12.2 percent in stock availability for our spares.

STOCK AVAILABILITY - TOTAL



TOTAL	83.9	86.5	84.7	84.4	85.2	86.9	87.9	87.9	88.4
ASF	84.7	86.2	85.	84.6	85.	87.0	88.0	88.0	88.6
PA-2	72.0	74.9	76.6	79.3	83.0	82.6	84.1	84.6	84.2

These increases, while remarkable in themselves, were even more impressive when considering the fact that the Army has introduced a number of new systems into its force during this period. This achievement would not have been possible if our provisioning and requirements determination programs were not effective.

In terms of our applicable vs. inapplicable inventory, 74.6 percent of AMC's total secondary items inventory in fiscal year 1988 was applicable. Seventy-eight percent (78%) of our spares inventory was applicable.

The Army Materiel Command continuously tracks Fully Mission Capable (FMC) Rates, for 398 major items of equipment in the hands of our soldiers, representing over 400,000 individual items, for the purpose of pinpointing and correcting short and long term equipment problems which impact materiel readiness. Total Army FMC rates experienced a slight upward trend through fiscal year 1987, with a high in the third quarter of 92.1 percent. Since that time FMC rates have been holding steady between 90.4 and 91.8 percent. The overall goal is 90 percent, so you can see that, so far, we are still holding our own. I must emphasize, however, that I am concerned with our future as the effect of constrained resources in fiscal year 1988 and 1989 is felt. Your continued support is essential to maintain the great strides we have made in increasing our readiness and sustainability.

CONCLUSION

In conclusion, the logistics of ensuring our 1.5 million soldiers are ready to fight and prevail anywhere in the world is a complex business. I hope my testimony has demonstrated the successful management of spares and repair parts in the Army and the assurance that we have allocated our resources wisely. The force modernization of the Army and our high state of readiness could not have been accomplished without the support of the United States Congress and this

Committee. The Army is appreciative of this support. As we move into a period of auster funding, wise stewardship of our resources and innovative thinking become even more imperative. The Army is fully committed to meeting this challenge, and looks forward to the continued support of the House Appropriations Committee.

Sir, this concludes my statement. I will be happy to respond to any questions.

Mr. **Murtha**. Admiral Moore?

SUMMARY STATEMENT OF ADMIRAL MOORE

Admiral **Moore**. I would like to briefly summarize my statement. I will start out with the scope of the Navy's inventory system, which, by any standard, I think is big business; 2.5 million items, 16 million materiel requests annually and about $31 billion in stocks of secondary items spares, repair parts, and consumables. My statement reviews in some detail the contribution that we believe this inventory has made, as you already have noted, to readiness and our ability to perform our mission.

READINESS

I would like to highlight a couple of those in this summary. I think they are very important in understanding the direct link between our inventory system and a number of these readiness indicators, all of which are at unparalled levels. Every one that we can count and measure indicates to us that we are in better shape than we were a few years ago.

Our system responsiveness, the percentage of time we are able to fill the requisition from the customer, today is at a level close to our 85 percent goal. The percentage of time that our surface ships are free of casualty reports depicting mission limiting or mission degrading situations or circumstances is much improved. A few years ago about 55 percent of our ships were in that category; today it is about 77 percent.

Perhaps even more dramatically in naval aviation, our mission capability rates have improved substantially. I would like to translate this into what I think is a meaningful statistic. Today, on an average deployed aircraft carrier, we are able to put in the air about $800 million more in mission ready aircraft a day or at any one point in time than we were eight or nine years ago or in the late seventies. That is the kind of readiness that we think we have bought and we believe it is extremely important and very easy to demonstrate.

INVENTORY GROWTH

Despite that, we understand that there is concern with regard to the size of our inventory and its growth. We have done considerable analysis to see if we can figure out the reasons for the growth, segmenting it into meaningful categories. We are tracking those reasons back to things we can do about the growth.

I will give you a couple of reasons that I think are extremely important. The force modernization that we have gone through in the last eight or nine years has had a major impact on putting new equipment on board, while removing old equipment and its associated spares. This need for new secondary items has resulted in about $9 billion of our inventory growth over the last eight or nine years. This is sort of an inevitable by-product of the cost of doing business when you modernize your forces.

Another $9 billion is the direct impact of those items that we took off the ship being turned into the supply system. The retention and disposal policies of the last few years have in turn limited our ability to take that material and get it off the books.

There are other major factors, but those are the two that I would highlight as principle reasons for the inventory growth. I don't think the level of inventory itself is necessarily a direct concern, but the extent to which that inventory is either long supply or inapplicable is of concern.

The Navy has a lot of actions underway to try to deal with the issues. I will outline steps we are taking in three or four different categories. These include steps to preclude new long supply, from delivering into the system, such as items that would be long supply if they delivered.

Steps to reduce current on-hand levels. We are taking a number of steps in the latter area. More important than either of these two steps, however, are the steps that we need to take to understand the root cause problems that we have with long supply.

SUPPLY MODERNIZATION

In this regard, supply system modernization is the key to our ability, we believe, to deal with these inventory issues in the future.

ADP modernization will help us deal with issues like initial stock determinations, configuration management and control, that is knowing exactly what equipment we have on what ships, and what may be required for support; demand forecasting improvements; and responsiveness of our system to program changes.

To pull this together, in January of this year, I chaired what I call an inventory management improvement program for the Navy. Forty or 50 key people from many major Navy commands involved in the process of inventory management participated. Both fleets commands, the systems commands in Washington, our major inventory control points and all of our major stock points, put together a 73 item program with the objective to move out on what needed to be done in this area.

I believe that this Navy initiative will stand us in good stead over the years in trying to come to grips with this issue and ensuring that our inventory management meets your standards. I would like to suggest that the size of the job we have, the fact that we deal in an environment where we have a great many types of equipment, but not very great populations of that equipment, creates an environment where, in hindsight, we made some bad buys or bought too much because we did not correctly forecast the demand.

In addition, I would be remiss if I didn't tell you that not only do I think we have made some mistakes, but given the size of this inventory, I suspect we will continue to make some mistakes. We are trying to minimize mistakes and ensure that we understand why we made them so we can apply appropriate corrective action.

MANPOWER LEVELS

The inventory management business continues to be people intensive. No matter how much we automate, we continue to rely very heavily on the operation and maintenance resources that provide us the manpower levels for our inventory control points and the stock points to adequately perform this function.

We are in balance today, but we would be extremely concerned with any erosion of these resources in the future. Our inventories have grown. We need to work on this. We are getting a lot out of our inventories in terms of contribution to readiness and sustainability, and I hope that we will be able to demonstrate that to you in this hearing today.

Thank you, Mr. Chairman.

Mr. MURTHA. Thank you.

[The statement of Admiral Moore follows:]

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APPROPRIATIONS COMMITTEE

STATEMENT OF

REAR ADMIRAL ROBERT M. MOORE, SC, USN

ASSISTANT COMMANDER

FOR

INVENTORY AND SYSTEMS INTEGRITY

NAVAL SUPPLY SYSTEMS COMMAND

BEFORE THE

DEFENSE SUBCOMMITTEE

OF THE

HOUSE APPROPRIATIONS COMMITTEE

10 MAY 1989

NOT FOR PUBLICATION UNTIL
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APPROPRIATIONS COMMITTEE

REAR ADMIRAL ROBERT M. MOORE
SUPPLY CORPS, UNITED STATES NAVY
ASSISTANT COMMANDER, INVENTORY AND SYSTEMS INTEGRITY

Rear Admiral Robert M. Moore became the Assistant Commander for Inventory and Systems Integrity, Naval Supply Systems Command, on 29 July 1988. He is responsible for Navy Programs to upgrade and modernize the Navy Supply System which supports the fleet throughout the world. He also leads the program to insure the accuracy and integrity of the Navy's multibillion dollar logistics support inventories.

A native of San Antonio, TX, he received a Bachelor of Journalism degree from the University of Texas and a Master in Business Administration degree (with high distinction) from Harvard University where he was named a George F. Baker Scholar.

Commissioned in 1961, his early tours included Supply Officer of the Destroyer HYMAN and instructor at the Navy Supply Corps School at Athens, GA. In 1964 he was selected for duty in the Naval Nuclear Propulsion Program and in 1966 was assigned as the program's contracting officer at a division of the General Electric Company in Schenectady, NY, where components for the Navy's nuclear powered ships are engineered and procured.

From 1971 to 1973 Rear Admiral Moore served as Director, Nuclear Equipment Support Division at the Navy's Ships Parts Control Center, Mechanicsburg, PA, and following this, served a second tour in the Naval Nuclear Propulsion Program where he was in charge of the headquarters procurement and new construction budget functions, and was the Senior Supply Corps Officer in the program.

As Supply Officer of the Submarine Tender HOLLAND at Submarine Refit Site One, Holy Loch, Scotland, from 1979 through 1981, he managed the supply support operations for a Squadron of Ballistic Missile Submarines operating in Atlantic Waters. He then served as Assistant for Program and Budget, Attack Submarine Division, Office of the Deputy Chief of Naval Operations (Submarine Warfare), where he was responsible for developing the multibillion dollar program for the Navy's attack submarine force.

In July 1983, Rear Admiral Moore became the Vice Commander, Navy Accounting and Finance Center, Washington, DC, and Deputy Assistant Comptroller of the Navy, Financial Management Systems. As such, he was one of the top Executives involved in the formulation of Navy Financial Management Policy and Plans.

In July 1985, he assumed command of the Navy Fleet Material Support Office, Mechanicsburg, PA. As the Senior Executive of the Navy's largest Data Processing Systems Development Center, his duties included direct responsibility for three of the largest Data Processing projects ever undertaken in the Federal Sector.

His first tour as a flag officer was Competition Advocate General of the Navy. In this billet he directed the competitive acquisition initiative now successfully underway in the Navy and Marine Corps for its $40 billion annual procurement of ships, aircraft, weapons equipment, spare parts and services.

Rear Admiral Moore's military decorations include the Legion of Merit (four awards) and the Meritorious Service Medal (two awards). He also is qualified in submarines.

He was selected for promotion to the rank of Rear Admiral in January 1987.

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

I AM REAR ADMIRAL BOB MOORE, ASSISTANT COMMANDER FOR INVENTORY AND SYSTEMS INTEGRITY AT THE NAVAL SUPPLY SYSTEMS COMMAND. I AM PLEASED TO BE HERE TODAY TO DISCUSS NAVY INVENTORY MANAGEMENT. AFTER SOME BRIEF INTRODUCTORY MATERIAL, I WILL COVER THE SIGNIFICANT CONTRIBUTION OUR INVENTORIES HAVE MADE TO NAVY READINESS. I WILL ALSO DISCUSS INVENTORY GROWTH IN THE 1980'S, AND THE NUMEROUS INITIATIVES UNDERWAY TO MINIMIZE OUR REQUIREMENTS AND IMPROVE OUR INVENTORY MANAGEMENT PROGRAM.

NAVY SUPPLY SYSTEM

THE NAVAL SUPPLY SYSTEMS COMMAND, REFERRED TO AS NAVSUP, IS THE NAVY'S PRINCIPAL MATERIAL SUPPORT ORGANIZATION, AND IS RESPONSIBLE TO THE CHIEF OF NAVAL OPERATIONS AND THE SECRETARY OF THE NAVY FOR THE DEVELOPMENT AND OPERATION OF THE NAVY SUPPLY SYSTEM. NAVSUP'S ORGANIZATION INCLUDES A HEADQUARTERS STAFF HERE IN WASHINGTON, TWO INVENTORY CONTROL POINTS --THE AVIATION SUPPLY OFFICE IN PHILADELPHIA AND THE SHIPS PARTS CONTROL CENTER IN CENTRAL PENNSYLVANIA, WHICH MANAGE MOST OF THE NAVY'S INVESTMENT IN INVENTORIES--AND THE EIGHT NAVAL SUPPLY CENTERS WHICH PHYSICALLY STOCK MUCH OF THE MATERIAL AND ARE COLLOCATED WITH MAJOR FLEET AND INDUSTRIAL SUPPORT ACTIVITIES.

THE NAVY SUPPLY SYSTEM IS COMPRISED OF A NUMBER OF ACTIVITIES BESIDES THOSE DIRECTLY COMMANDED BY NAVSUP, SUCH AS THREE NAVAL

SUPPLY DEPOTS IN THE WESTERN PACIFIC, WHICH INTERACT TO CARRY OUT THE BASIC FUNCTIONS OF PROCURING, RECEIVING, STOWING, ISSUING, TRANSPORTING AND ACCOUNTING FOR MATERIAL. IN TOTAL, THE NAVY SUPPLY SYSTEM STOCKS OVER 2.5 MILLION ITEMS, VALUED AT 31 BILLION DOLLARS, TO MEET NEARLY 16 MILLION ANNUAL MATERIAL REQUESTS.

THE REMAINDER OF THIS STATEMENT WILL FOCUS ON INVENTORY MANAGEMENT OF THE SPARES, REPAIR PARTS AND CONSUMABLE ITEMS STOCKED IN THE NAVY SUPPLY SYSTEM. BECAUSE THEY TYPICALLY REPRESENT SUBASSEMBLIES OR OTHER COMPONENTS OF A COMPLETE "PRINCIPAL ITEM" SUCH AS A RADAR OR AIRCRAFT, SUPPLY SYSTEM STOCKS ARE COMMONLY KNOWN AS "SECONDARY ITEMS."

WHEN A NEW OR REVAMPED WEAPON SYSTEM IS BEING DEVELOPED, ENGINEERING ESTIMATES ARE USED TO PREDICT THE TYPES AND QUANTITIES OF SECONDARY ITEM SUPPLY SYSTEM STOCKS NEEDED TO SUPPORT THE WEAPON. OVER TIME THE QUANTITIES STOCKED IN THE SUPPLY SYSTEM ARE ADJUSTED TO REFLECT EXPERIENCED DEMAND AND ANTICIPATED CHANGES IN THE WEAPON SYSTEM'S CHARACTERISTICS, SUCH AS RELIABILITY IMPROVEMENTS, OR EVIDENCE OF INCREASED DEMAND DUE TO COMPONENT "FATIGUE" AS THE EQUIPMENT AGES.

ITEMS USED BY NAVY ARE EITHER PROCURED FROM THE COMMERCIAL SECTOR BY OUR INVENTORY CONTROL POINTS, WHICH TOGETHER MANAGE NEARLY 650 THOUSAND ITEMS, OR ARE OBTAINED FROM THE DEFENSE LOGISTICS AGENCY (DLA), GENERAL SERVICES ADMINISTRATION (GSA), AND THE OTHER MILITARY SERVICES. OVER 1.8 MILLION ITEMS OF INTEREST TO NAVY ARE STOCKED CENTRALLY BY THESE AGENCIES (PRIMARILY BY DLA). THE GREAT MAJORITY OF OUR SECONDARY ITEMS ARE POSITIONED ASHORE AT NAVAL SUPPLY CENTERS, SUPPLY DEPOTS, AIR STATIONS, SHIPYARDS AND WEAPON STATIONS, AT LOCATIONS IN CLOSE PROXIMITY TO ANTICIPATED USAGE.

STOCKS OF SECONDARY ITEMS ARE NOT LIMITED TO THE SUPPLY SYSTEM. BECAUSE OF THE HIGHLY MOBILE NATURE OF OUR FORCES AND THEIR FREQUENT REQUIREMENT TO OPERATE INDEPENDENT OF IMMEDIATE SUPPLY SYSTEM SUPPORT, OUR SHIPS CARRY THEIR OWN STOCKS OF SECONDARY ITEMS BASED ON ESTABLISHED ALLOWANCE CRITERIA. IN THOSE CASES WHERE A SHIP HAS A REQUIREMENT WHICH IS NOT AVAILABLE FROM ON-BOARD STOCKS, IT WILL SUBMIT THE REQUIREMENT TO ITS SUPPORTING STOCK POINT FOR SUPPLY SYSTEM ACTION. IF THE ITEM IS ALSO NOT AVAILABLE IN THE SUPPLY SYSTEM, IT IS THEN NORMALLY PROCURED FROM A COMMERCIAL VENDOR FOR DELIVERY TO THE CUSTOMER.

MANAGING THE SUPPLY SYSTEM IS CONCEPTUALLY QUITE SIMPLE, BUT ULTIMATELY INVOLVES LITERALLY MILLIONS OF DECISIONS EACH YEAR WHICH IMPACT ON THE COMBAT READINESS AND SUSTAINABILITY OF BILLIONS OF DOLLARS OF SHIPS AND AIRCRAFT...AND THE SAFETY OF THEIR CREWS. IN THAT CONTEXT, A DECISION SUCH AS WHETHER TO INVEST IN STOCK FOR A LOW-DEMAND PART WHOSE FAILURE COULD "DOWN" A SHIP OR AIRCRAFT MUST OFTEN BE JUDGED ON FACTORS THAT GO BEYOND ITEM COST AND DEMAND FORECAST CRITERIA. THESE FACTORS COULD INCLUDE MISSION ESSENTIALITY OR THE PROSPECT THAT THERE WILL BE

NO SOURCE FOR THE ITEM IN THE FUTURE. IN THE NEXT SECTION I WILL DISCUSS THE CONTRIBUTION OF OUR INVENTORY INVESTMENT TO READINESS AND SUSTAINABILITY IN SUPPORTING THE NAVY'S OPERATING FORCES.

READINESS SUPPORT

THE NAVY SUPPLY SYSTEM'S INVENTORY POLICY AND PERFORMANCE GOALS ARE CLOSELY LINKED TO MISSION-SUPPORT CRITERIA. THE NAVY'S MISSION REQUIRES THAT ITS FORCES BE MOBILE, THAT ITS SENSORS AND WEAPON SYSTEMS BE OPERATIONALLY AVAILABLE WHEN CALLED UPON, AND THAT THE CAPABILITY EXIST TO SUSTAIN THIS OPERATIONAL AVAILABILITY OVER A PROLONGED PERIOD. WE CURRENTLY HAVE TWO PRINCIPAL MEASURES OF THE SUPPLY SYSTEM'S ABILITY TO SATISFY CUSTOMER MATERIAL REQUIREMENTS:

o "POINT OF ENTRY" (POE) EFFECTIVENESS MEASURES THE PROPORTION OF OUR CUSTOMERS' REQUIREMENTS WHICH IS SATISFIED BY IMMEDIATE ISSUE FROM THE CLOSEST NAVY STOCK POINT. ATTACHMENT A REFLECTS OUR IMPROVEMENT IN THE 1980'S IN AVAILABILITY RATES FOR THOSE MAINTENANCE-RELATED MATERIALS WHICH WE OBTAIN FROM THE DEFENSE LOGISTICS AGENCY (DLA) AND POSITION AT OUR STOCK POINTS. FOR EVERY 100 SUCH REQUIREMENTS, WE ARE FILLING 69--10 MORE THAN WE DID IN 1980, AND WE ARE VIRTUALLY AT OUR GOAL IN THIS MEASURE OF EFFECTIVENESS.

- "SYSTEM MATERIAL AVAILABILITY" (SMA) MEASURES THE PROPORTION OF REQUISITIONS SATISFIED BY OUR INVENTORY CONTROL POINTS (ICP'S), WHICH HAVE WORLDWIDE CONTROL AND VISIBILITY OF SUPPLY SYSTEM ASSETS OF NAVY UNIQUE ITEMS. THESE STOCKS ARE CRITICAL TO SUSTAINING FLEET OPERATIONS, AND OUR ISSUE RATE FOR THIS MEASURE, WHICH IS PROVIDED IN ATTACHMENT B, RESULTS IN 83 ISSUES PER 100 REQUESTS--9 MORE THAN IN 1980, AND IS CLOSE TO THE 85 PERCENT GOAL.

- THE SUPPLY SYSTEM IS STRUCTURED SO THAT OUR MATERIAL AVAILABILITY RATES WILL, IN CONJUNCTION WITH TARGET AVAILABILITY RATES ACHIEVED BY ISSUES FROM THE SHIP'S OWN STOCKS, ENABLE OVERALL MATERIAL SUPPORT TO BE PROVIDED IN TIME TO HELP ENSURE THE DESIRED OPERATIONAL AVAILABILITY RATE FOR THE NAVY'S WEAPON SYSTEMS.

I WOULD NOT CLAIM THAT THE UPGRADED SPARE PARTS SUPPORT I HAVE JUST DISCUSSED IS THE ONLY IMPORTANT FACTOR IN THE VASTLY IMPROVED READINESS RATES ACHIEVED BY THE NAVY IN RECENT YEARS. MOST STUDIES INDICATE THAT THIS REFLECTS A MIX OF GAINS FROM BETTER STAFFING, UPGRADED TRAINING, IMPROVED MAINTENANCE, MORE RELIABLE EQUIPMENT, AND ENHANCED SPARE PARTS SUPPORT. HOWEVER, THERE IS NO QUESTION THAT INCREASED INVENTORY LEVELS AND IMPROVED SUPPLY SYSTEM SUPPORT HAVE PLAYED A MAJOR ROLE. THE FOLLOWING FURTHER HIGHLIGHTS THE ROLE OF SECONDARY ITEM SUPPORT IN THE HIGH

READINESS STATUS ACHIEVED BY OUR COMBAT FORCES:

- AVIATION READINESS IS PRIMARILY MEASURED BY MISSION CAPABLE (MC) RATES, WHICH INDICATE THE PERCENT OF AIRCRAFT ABLE TO PERFORM ONE OR MORE OF THEIR KEY MISSIONS, AND FULL MISSION CAPABLE (FMC) RATES, WHICH ARE LINKED TO THE AIRCRAFT'S READINESS TO PERFORM ALL ITS MAJOR MISSIONS. ATTACHMENT C HIGHLIGHTS THE GAIN IN THESE RATES FOR DEPLOYED AIRCRAFT IN THE 1980'S. THESE GAINS TRANSLATE INTO ALMOST 800 MILLION DOLLARS MORE IN MISSION-READY AIRCRAFT FOR EACH DEPLOYED AIRCRAFT CARRIER AT A TYPICAL POINT IN TIME IN THE LATE 1980'S, WHEN COMPARED TO THE LATE 1970'S. THIS ALSO MEANS THAT AN AIRCRAFT CARRIER IN 1988 COULD LAUNCH 24 MORE FULLY MISSION CAPABLE AIRCRAFT, READY TO PUT ORDNANCE ON TARGET OR CARRY OUT ANTI-AIR OR ANTI-SUBMARINE ACTIONS, THAN IT COULD IN 1980. THESE VITAL READINESS IMPROVEMENTS WOULD NOT HAVE BEEN FEASIBLE WITHOUT THE INCREASED SPARES SUPPORT REFLECTED IN ATTACHMENT D, WHICH DEMONSTRATES THE EXCEPTIONAL REDUCTION IN CRITICAL ITEM REQUISITIONS OUTSTANDING FROM DEPLOYED AIRCRAFT CARRIERS.

- SURFACE SHIP READINESS FOR IMMEDIATE OPERATIONS IS PRINCIPALLY TRACKED BY THE PERCENTAGE OF TIME THE SHIP IS FREE OF ANY SYSTEM CASUALTIES WHICH WOULD MAKE ONE OF ITS MAJOR WEAPONS INOPERATIVE OR THAT WOULD PREVENT THE SHIP FROM GETTING UNDERWAY. ATTACHMENT E DISPLAYS THE 36 PERCENT PROPORTIONAL IMPROVEMENT IN THESE RATES FOR SURFACE SHIPS

SUCH AS CRUISERS AND DESTROYERS. THESE SHIPS WERE FAR MORE LIKELY TO BE FREE OF MISSION-DEGRADING WEAPON SYSTEM OR EQUIPMENT PROBLEMS, IN VITAL AREAS SUCH AS MISSILE LAUNCHERS, PROPULSION EQUIPMENT AND AIR DEFENSE RADARS, IN 1988 THAN EARLIER IN THE DECADE. FROM A SUPPLY SYSTEM PERSPECTIVE, AS REFLECTED IN ATTACHMENT F, WE TAKE 40 PERCENT LESS TIME TO FILL A MISSION-DEGRADING PARTS REQUIREMENT THAN WE DID IN 1980.

THE BOTTOM LINE IS THAT THROUGHOUT THE SUPPLY SYSTEM WE HAVE INVESTED IN INVENTORY LEVELS THAT HAVE INCREASED THE PROBABILITY OF MAKING AN ISSUE CLOSE TO THE CUSTOMER. THUS WHEN AN INSTALLED PART FAILS, A REPLACEMENT IS MORE LIKELY TO BE ABOARD SHIP. IF IT IS NOT ON BOARD, THERE IS LESS LIKELIHOOD OF HAVING TO WAIT FOR PROCUREMENT TO SATISFY THE NEED. THERE ARE FEWER CRITICAL REQUISITIONS LEAVING THE SHIP EACH DAY, AND THOSE THAT DO ARE SATISFIED IN LESS TIME.

INVENTORY GROWTH

THE SUPPLY SYSTEM'S OBJECTIVE IS TO STOCK THE MINIMUM INVENTORIES NECESSARY TO MEET THE CHIEF OF NAVAL OPERATIONS' READINESS GOALS. OUR SUPPORT POSTURE IS MUCH IMPROVED THANKS TO CONGRESSIONAL SUPPORT OF NAVY INITIATIVES TO REBUILD INVENTORY LEVELS AND TO POSITION MORE STOCK CLOSE TO THE CUSTOMER TO IMPROVE OUR RESPONSIVENESS. MATERIAL AVAILABILITY RATES ARE VERY CLOSE TO ASSIGNED GOALS. IN ACHIEVING THESE VALUABLE

IMPROVEMENTS IN OUR MATERIAL SUPPORT OF READINESS AND SUSTAINABILITY, NAVY SUPPLY SYSTEM INVENTORIES OF SECONDARY ITEMS HAVE GROWN SUBSTANTIALLY, FROM LESS THAN $9 BILLION IN 1980, TO OVER $31 BILLION IN 1988. THE FOLLOWING OUTLINES MAJOR FACTORS IN THAT GROWTH:

o GROWTH ASSOCIATED WITH FORCE MODERNIZATION AND EXPANSION, PLUS THE FILLING OF PREVIOUSLY UNFUNDED INVENTORY REQUIREMENTS.	$9B
o RECEIPT AND RETENTION OF MATERIAL TURNED INTO STORE (MTIS), OFTEN AS A RESULT OF ITS DECLINING USE IN SUPPORT OF EQUIPMENT, SHIPS AND AIRCRAFT BEING REPLACED OR UPGRADED DUE TO FORCE MODERNIZATION.	$9B
o PRICE ESCALATION...PRIMARILY FROM INFLATION IN THE EARLY 1980'S, AND INDEXING OF OLD PRICES TO CURRENT LEVELS WHEN AVIATION DEPOT LEVEL REPAIRABLES CAME INTO THE NAVY STOCK FUND IN 1985.	$7B
o STOCK FUNDING OF AIRCRAFT CARRIER INVENTORIES.	$3B
o GAO-DIRECTED DOD-WIDE INVENTORY REVALUATION.	($5B)
TOTAL	$23B

THE AMOUNT OF GROWTH REFLECTED IN THE ABOVE NUMBERS

INEVITABLY HAS SUBJECTED NAVY TO SOME CRITICISM. IN THAT REGARD, THERE IS A MYRIAD OF CONFUSING TERMINOLOGY ASSOCIATED WITH DESCRIPTIONS OF THE RELATIVE MERITS OF SUPPLY SYSTEM INVENTORIES IN THE NAVY AND THE DEPARTMENT OF DEFENSE (DOD). IT MIGHT BE USEFUL TO LOOK AT SOME OF THE TERMS USED TO PARTITION OUR INVENTORIES:

- "APPLICABLE" IS A BUDGETARY TERM. ITS PURPOSE IS TO IDENTIFY THAT PART OF THE INVENTORY WHICH IS APPLICABLE TO A CERTAIN PERIOD--USUALLY THROUGH THE CURRENT FISCAL YEAR OR THE ONE ABOUT TO START. THIS LEVEL OF INVENTORY INCLUDES AN ITEM'S NORMAL STOCKAGE OBJECTIVE PLUS DEMAND ANTICIPATED DURING THE PERIOD. I THINK OF THIS IN ROUGH TERMS AS SUPPORT NEEDED THROUGH THE NEXT YEAR.

- TECHNICALLY ALL REMAINING ASSETS ARE SIMPLY CALLED "OTHER" ASSETS IN BUDGETARY DOCUMENTS, BUT THE TERM "INAPPLICABLE" HAS COME INTO VOGUE TO DESCRIBE THEM. LITERALLY, "INAPPLICABLE" MEANS NOT APPLICABLE TO THE PERIOD IN QUESTION--AGAIN, ROUGHLY THROUGH THE NEXT YEAR. HOWEVER, MANY "INAPPLICABLE" ASSETS WILL ACTUALLY BECOME APPLICABLE TO REQUIREMENTS WITHIN THE NEXT SEVERAL FISCAL YEARS.

- IN ORDER TO REFLECT THE LONGER-TERM UTILITY OF INVENTORIES, THE NAVY AND DOD STRATIFICATION PROCESSES CONSIDER THE PERIOD OF APPLICABILITY TO BE 24 TO 30 MONTHS, DEPENDING ON THE POINT AT WHICH THE SNAPSHOT IS TAKEN. ASSETS NOT

NEEDED WITHIN THAT PERIOD ARE THEN CONSIDERED "LONG SUPPLY".

o MOREOVER, AS DESCRIBED IN MR. REAY'S TESTIMONY, THERE ARE SEVERAL CATEGORIES OF LONG SUPPLY WHICH IT IS SOUND ECONOMIC AND CONTINGENCY RETENTION PRACTICE TO RETAIN. ULTIMATELY ONLY A SMALL PROPORTION OF THE TOTAL INVENTORY IS TRULY "EXCESS" AND OF NO REMAINING VALUE TO NAVY. IT IS THIS PORTION, SOME OF WHICH IS THE INEVITABLE "COST OF DOING BUSINESS" ASSOCIATED WITH FORCE MODERNIZATION, THAT IS EVENTUALLY OFFERED TO THE DEFENSE REUTILIZATION AND MARKETING SERVICE FOR POTENTIAL USE OR REDISTRIBUTION.

THE CRITICISM NOTED ABOVE HAS BEEN PARTICULARLY DIRECTED AT THE PORTION OF OUR ON-HAND INVENTORY WHICH STRATIFIED AS LONG SUPPLY, WHICH HAS GROWN BY $9 BILLION--FROM $3 BILLION IN 1980 (36 PERCENT OF THE 1980 TOTAL INVENTORY), TO $12 BILLION IN 1988 (38 PERCENT OF THE TOTAL). UNFORTUNATELY, SOME OBSERVERS HAVE TAKEN THE EXTREME POSITION THAT ALL OF OUR INAPPLICABLE OR LONG SUPPLY INVENTORY IS "UNNEEDED" AND SIMPLY INDICATIVE OF "BAD BUYS." THIS IS UNREALISTIC, AND UNDERSTATES THE LONG-TERM CONTRIBUTION OF THIS INVENTORY TO FLEET READINESS AND SUSTAINABILITY. IN FACT MUCH OF THIS MATERIAL DOES HAVE A PREDICTABLE FUTURE USE, OR IS BEING RETAINED TO MEET ECONOMIC OR CONTINGENCY RETENTION CRITERIA.

LET ME GIVE YOU SOME EXAMPLES TO ADDRESS FURTHER THE CATEGORIZATION OF OUR INVENTORIES:

- FIRST, ITEMS CAN BE CLASSIFIED AS INAPPLICABLE OR LONG SUPPLY AT A POINT IN TIME, YET HAVE SIGNIFICANT VALUE TO THE NAVY. WE FOUND THAT OF THE TOP 50 LONG SUPPLY ITEMS ON ORDER AT OUR AVIATION ICP IN 1984, TOTALLING $103 MILLION, OVER 85 PERCENT WERE IN AN APPLICABLE STATUS, OR EVEN IN AN ASSET DEFICIENCY POSTURE, WITHIN FOUR YEARS. BASED ON RECENT EXPERIENCE, HAD WE TERMINATED BUYS FOR THESE ITEMS, WE WOULD HAVE SPENT ABOUT 24 CENTS ON EACH DOLLAR TO STOP DELIVERY, AND WOULD HAVE RECEIVED NOTHING FOR OUR MONEY... YET RELATIVELY SOON THEREAFTER, MOST OF THAT SAME MATERIAL WOULD HAVE BEEN NEEDED AND THUS WOULD HAVE REQUIRED ANOTHER ORDER, CONCEIVABLY AT A HIGHER PRICE.

- A SIGNIFICANT PORTION OF OUR LONG SUPPLY INVENTORIES --71 PERCENT IN THE CASE OF OUR AVIATION REPAIRABLES-- REPRESENTS NOT READY FOR ISSUE REPAIRABLE ITEMS, MANY OF WHICH WERE FIRST PROCURED YEARS AGO AND HAVE BEEN REPAIRED AND REUTILIZED TO SUPPORT READINESS NUMEROUS TIMES OVER THE YEARS. WE ESTIMATE THAT THE TYPICAL "INAPPLICABLE" NOT READY FOR ISSUE AVIATION REPAIRABLE HAS BEEN REPAIRED AND USED AGAIN ON SOME 30 OCCASIONS IN ITS USEFUL LIFETIME. MOST OFTEN IT IS NO LONGER APPLICABLE DUE TO MODIFICATIONS OR MODERNIZATION WHICH PLACE THE EQUIPMENT OR AIRCRAFT IT

SUPPORTS IN "OUT OF PRODUCTION" STATUS, AND MERELY REPRESENTS A LONG-VALUABLE ASSET THAT HAS NOW NEARED OR REACHED THE END OF ITS VERY USEFUL LIFE.

o A MAJOR DRIVER OF THE INCREASE IN LONG SUPPLY WAS MATERIAL TURN-INS OF $9 BILLION NOTED EARLIER IN OUR SUMMARY OF THE GROWTH IN OVERALL INVENTORY LEVELS IN THE 1980'S. IN THAT REGARD, AS A RESULT OF CONGRESSIONAL CONCERNS IN 1984, DOD IMPOSED A TEMPORARY MORATORIUM ON ALL DISPOSAL ACTIONS. IN 1985 THIS APPROACH WAS MODIFIED, BUT STILL REQUIRED RETENTION OF ALL SPARES RELATED TO ACTIVE WEAPON SYSTEMS, UNLESS THE SPARE PART ITSELF WAS OBSOLETE. THE NAVY ALSO CHOSE TO RETAIN ANY ITEMS WITH APPLICATION TO THE FOREIGN MILITARY SALES (FMS) PROGRAM. THUS MUCH OF THE $9 BILLION IN ITEMS RECEIVED FROM TURN IN RELATED TO REDUCTIONS IN REQUIREMENTS FOR EQUIPMENT REPLACED OR MODIFIED IN THE 1980'S. THESE ITEMS HAVE REMAINED IN OUR INVENTORY UNLESS THERE WAS ABSOLUTELY NO POSSIBILITY OF FUTURE UTILIZATION.

ON BALANCE, EVEN THOUGH GROWTH IN INVENTORIES WAS THE INEVITABLE RESULT OF DEVELOPING A STRONGER, MORE CAPABLE NAVY...AND DESPITE THE FACT THAT MUCH OF OUR GROWTH WILL COVER FUTURE REQUIREMENTS OR WAS A BY-PRODUCT OF FORCE MODERNIZATION...WE ARE

CONCERNED THAT $12 BILLION OF OUR $31 BILLION INVENTORY STRATIFIES AS LONG SUPPLY. WE HAVE RECOGNIZED THE NEED TO TAKE ADDITIONAL STEPS TO ASSURE THAT WE HAVE THE MINIMUM PRACTICABLE INVENTORY NEEDED TO SUSTAIN READINESS. IN DOING SO, WE HAVE GIVEN FULL CONSIDERATION TO CONGRESSIONAL AND AUDIT CONCERNS. WE HAVE A STRUCTURE TO DEAL WITH THESE ISSUES. INITIAL ACTION IS COMPLETED, AND ADDITIONAL ACTION IS UNDERWAY OR PLANNED. I WOULD NOW LIKE TO DESCRIBE OUR IMPROVEMENT PROGRAM AND SOME OF THE KEY INITIATIVES.

INVENTORY MANAGEMENT INITIATIVES

I HAVE DIVIDED OUR INITIATIVES INTO FOUR MAJOR CATEGORIES: ACTIONS TO PRECLUDE INTRODUCTION OF NEW LEVELS OF LONG SUPPLY STOCK; ACTIONS TO REDUCE CURRENT LEVELS ON HAND; LONGER TERM ACTIONS TO ADDRESS UNDERLYING CAUSATIVE FACTORS; AND THE OVERALL STRUCTURE TO LEAD AND MANAGE THIS EFFORT.

IN PRECLUDING INTRODUCTION OF NEW LEVELS OF LONG SUPPLY STOCK, WE HAVE:

- REDUCED BY ALMOST $500 MILLION THE AMOUNT OF MATERIAL WHICH WOULD HAVE BEEN LONG SUPPLY HAD IT BEEN ALLOWED TO DELIVER TO THE SYSTEM.

- REDUCED THE ADMINISTRATIVE PORTION OF PROCUREMENT LEAD TIME

BY 36 DAYS TO DATE, WITH SIGNIFICANT ADDITIONAL IMPROVEMENT TARGETED. THIS IS IMPORTANT SINCE SHORTER LEAD TIMES REDUCE THE HORIZONS OVER WHICH WE ARE REQUIRED TO FORECAST DEMAND.

- USED MORE CONSERVATIVE ECONOMIC ORDER QUANTITIES IN REPLENISHING OUR STOCK LEVELS.

IN ADDITION, WE HAVE AGGRESSIVELY PURSUED OUR "BUY OUR SPARES SMART" (BOSS) PROGRAM, WHICH CONCENTRATES OUR EFFORTS TO INCREASE COMPETITIVE BUYS FROM THE MOST ECONOMICAL SOURCES, AND HAS PRODUCED A COST AVOIDANCE OF ALMOST $1.3 BILLION SINCE ITS INCEPTION IN 1983.

WITH REGARD TO ACTIONS TO REDUCE CURRENT ON-HAND LEVELS, WE ARE:

- REVISING OUR RETENTION AND DISPOSAL POLICIES SO THAT WE WILL CONTINUE TO RETAIN ADEQUATE STOCKS OF ALL MISSION CRITICAL ITEMS, BUT WILL ALSO INITIATE A CONSERVATIVE INCREASE IN OUR DISPOSAL ACTIONS.

- EXPANDING OUR SUCCESSFUL PROGRAM TO MAXIMIZE UTILIZATION WITHIN NAVY OF STOCK POINT EXCESSES OF THE MATERIALS WE OBTAIN FROM THE DEFENSE LOGISTICS AGENCY (DLA) AND THE GENERAL SERVICES ADMINISTRATION (GSA). WE EXPECT TO REDISTRIBUTE OVER $18 MILLION IN INVENTORY VIA THIS PROCESS

IN FISCAL YEAR 1989.

- o SETTING UP EXPERIMENTAL "JUST-IN-TIME" REPLENISHMENT PROGRAMS BETWEEN GSA AND MAJOR SHORE-BASED CUSTOMERS. RATHER THAN STOCKING THE INVENTORY TO SUPPORT ROUTINE CUSTOMER REQUIREMENTS, THE SUPPLY CENTER WORKS AS AN INTERFACE TO TRANSMIT THE INFORMATION TO GSA FOR MATERIAL DELIVERY. THIS ALLOWS REDUCTION OF NAVY INVENTORIES FOR THESE ITEMS, ALTHOUGH WE WILL STILL HAVE TO MAINTAIN SOME STOCKS TO SUPPORT EMERGENCY DEMANDS.

- o EXPLORING THE POTENTIAL TO INCREASE THE USE OF SUPPLY SYSTEM INVENTORIES THROUGH VARIOUS APPROACHES, INCLUDING PROVIDING ITEMS AS GOVERNMENT FURNISHED MATERIAL TO DEFENSE CONTRACTORS WHEN IT IS ADVANTAGEOUS TO THE NAVY TO DO SO, REEMPHASIZING PROGRAMS TO SELL TO OUR ALLIES THOSE ASSETS OF PRIMARY INTEREST ONLY TO FMS CUSTOMERS, AND FILLING ALLOWANCE DEFICIENCIES IN SUPPORT OF SHIPS AND AIRCRAFT THAT ARE NOT IN SERVICE BUT WOULD BE MOBILIZED IN WARTIME.

WHILE THE STEPS OUTLINED ABOVE ARE NECESSARY AND IMPORTANT, WE VIEW THE IDENTIFICATION AND RESOLUTION OF UNDERLYING CAUSATIVE FACTORS TO BE CRITICAL TO OUR LONG-TERM GOALS. IN THIS CONNECTION FOUR PRINCIPAL FACTORS HAVE BEEN IDENTIFIED FOR IMPROVEMENT:

- o INITIAL STOCK DETERMINATION. WHEN TRYING TO PROVIDE FOR

IMPROVED OPERATIONAL AVAILABILITY FOR NEW WEAPON SYSTEMS, WE USE ENGINEERING ESTIMATES PROVIDED BY THE CONTRACTORS WHO BUILD THE COMPONENTS, AND ATTEMPT TO IDENTIFY ITEMS WHICH HAVE THE HIGHEST LIKELIHOOD OF FAILURE DURING THE LIFE OF THE SYSTEM. THERE IS NO METHOD KNOWN TODAY OF PREDICTING IN ADVANCE EXACTLY WHICH ITEMS THESE MAY BE. THIS, AND THE OTHER THREE FACTORS NOTED BELOW, CLEARLY INCREASES THE POTENTIAL FOR STOCKING ITEMS THAT LATER PROVE TO EXCEED APPLICABLE REQUIREMENTS.

o CONFIGURATION MANAGEMENT. ENGINEERING DESIGNS FOR SOME ITEMS CHANGE FREQUENTLY DURING DEVELOPMENT AND OPERATIONS. AT SOME POINT IN TIME, WE MUST MAKE A DECISION AND START THE PROCUREMENT PROCESS, OR ELSE WE WILL NOT HAVE MATERIAL ON THE SHELF WHEN THE FIRST REQUISITIONS ARRIVE FROM THE USERS. BECAUSE OF THE LENGTH OF THE PROCUREMENT PROCESS, SOME MATERIAL THAT LOOKS LIKE IT MAY BE NEEDED IN THE FUTURE WILL NOT BE USED BECAUSE THE DESIGN OR MAINTENANCE PHILOSOPHY CHANGES.

o DEMAND FORECASTS. EXECUTION OF AN INVENTORY SYSTEM REQUIRES US TO FORECAST WHAT THE DEMAND FOR AN ITEM WILL BE AFTER IT IS DELIVERED. THIS MEANS THAT FOR ITEMS PROCURED TODAY, OUR INVENTORY CONTROL POINTS HAVE TO ESTIMATE WHAT THE USAGE WILL BE BETWEEN NOW AND SOMETIME IN 1991 IN ORDER TO KNOW WHEN TO START THE PROCUREMENT PROCESS, AND THEY

HAVE TO ESTIMATE USAGE IN 1991 AND BEYOND TO CALCULATE HOW MUCH TO BUY. SINCE A RECENT ANALYSIS INDICATES MOST OF OUR NAVY UNIQUE DEMAND-BASED ITEMS AT ONE OF OUR INVENTORY CONTROL POINTS HAVE EXPERIENCED AT LEAST A 25 PERCENT VARIATION IN DEMAND (UP OR DOWN) FROM ONE YEAR TO THE NEXT, THIS IS A REAL CHALLENGE.

- PROGRAM CHANGES. DECISIONS TO CANCEL OR STRETCH OUT PROGRAMS IN RESPONSE TO BUDGET CONSTRAINTS COULD RESULT IN RECEIPT OF ADDITIONAL INAPPLICABLE MATERIAL FROM CONTRACTS THAT PROVE UNECONOMICAL TO TERMINATE.

WE HAVE MAJOR INITIATIVES UNDERWAY TO IMPROVE OUR WAY OF DOING BUSINESS. MANY OF THESE ADDRESS ONE OR MORE OF THE CAUSATIVE FACTORS IDENTIFIED ABOVE. WE ARE UTILIZING THE TREMENDOUS GROWTH IN CAPABILITY OF MODERN INFORMATION PROCESSING SYSTEMS TO DO THIS, BY FINALLY BEING ABLE TO CREATE AND MAINTAIN THE TECHNICAL, PROCUREMENT, AND MAINTENANCE DATA BASES NECESSARY FOR CALCULATING REQUIREMENTS MORE ACCURATELY AND RESPONDING MORE RAPIDLY. SOME EXAMPLES OF WHERE WE ARE HEADED, GROUPED BY THE CAUSATIVE FACTOR UPON WHICH THEY HAVE THE GREATEST EFFECT, ARE:

INITIAL STOCK DETERMINATION

- IN CONJUNCTION WITH A DOD TASK FORCE, WE ARE WORKING ON SEVERAL PROVISIONING INITIATIVES DESIGNED TO IMPROVE THE QUALITY OF DATA USED IN DEVELOPING INITIAL SUPPLY SYSTEM

STOCKAGE REQUIREMENTS. WE ARE ALSO ENHANCING OUR OVERALL MANAGEMENT OF THE ENTIRE PROVISIONING PROCESS, AND HAVE PROJECTS UNDERWAY TO MAKE MAXIMUM USE OF ADVANCED TECHNOLOGICAL SOLUTIONS FOR RAPID DATA ACCESS.

o AS A RELATED EFFORT, READINESS-BASED SPARING METHODS HAVE BEEN DEVELOPED FOR BOTH SHIPS AND AIRCRAFT SYSTEMS. WE ARE EXCITED ABOUT THE POSSIBILITIES HERE, BECAUSE WE WILL BE ABLE TO IDENTIFY THOSE COMPONENTS WHICH HAVE THE MOST IMPACT ON WEAPON SYSTEM READINESS AND SPARE THEM ACCORDINGLY, WHILE ACCEPTING MORE RISK OF STOCKOUT THROUGH LOWER INVENTORY LEVELS FOR NON-CRITICAL ITEMS. THE KEY TO SUCCESS IS IN DEVELOPMENT AND MAINTENANCE OF SYSTEM RELIABILITY AND CONFIGURATION DATA BASES THAT ARE MUCH MORE SOPHISTICATED THAN PREVIOUSLY KEPT. THERE IS A REAL COST TO MAINTAINING THIS DATA, BUT THE PAYOFF WILL BE IN MORE ACCURATE ALLOWANCES OF ITEMS REALLY NEEDED. CURRENTLY, READINESS-BASED MODELS HAVE BEEN USED FOR THE AEGIS SYSTEM, THE SH-60 HELICOPTER, AND ARE NOW BEING USED FOR THE DDG-51 CLASS OF SHIPS. AS NEW SYSTEMS ENTER THE INVENTORY, THE GOAL IS TO DEVELOP READINESS-BASED ALLOWANCES FOR THEM AS WELL.

o WE HAVE INITIATED A FORMAL PROGRAM TO REDUCE PROCUREMENT LEADTIME THROUGH A VARIETY OF TECHNIQUES, WHICH INCLUDE MECHANIZATION OF NUMEROUS LABOR INTENSIVE ADMINISTRATIVE ELEMENTS, AND USE OF MORE FLEXIBLE CONTRACTUAL PROCESSES

SUCH AS OPTIONAL FOLLOW-ON ORDER QUANTITIES AND MORE EMPHASIS ON REQUIRED DELIVERY DATES IN CONTRACT NEGOTIATIONS. WE EXPECT TO ACHIEVE A 25 PERCENT PROCUREMENT LEADTIME REDUCTION GOAL BY THE END OF FISCAL YEAR 1990, IN ACCORDANCE WITH GUIDANCE FROM THE UNDER SECRETARY OF DEFENSE FOR ACQUISITION.

CONFIGURATION MANAGEMENT

- AN INFORMATION SYSTEM FOR SHIP CONFIGURATION AND LOGISTICS SUPPORT IS NOW PROVIDING AN ON-LINE, UP TO DATE DATA BASE FOR IDENTIFYING ACTUAL SHIP CONFIGURATION. THIS ALLOWS US TO TAILOR SHIPBOARD ALLOWANCES TO EXACTLY WHAT EACH SHIP CARRIES, FROM ELECTRONICS TO HULL VALVES. IN THE PAST, THE MANUAL EFFORT REQUIRED TO PERIODICALLY REVALIDATE EACH SHIP'S CONFIGURATION WAS ENORMOUS AND PRONE TO ERROR, AND CONSEQUENTLY THERE WERE ALWAYS SOME ITEMS CARRIED IN INVENTORY THAT EXCEEDED ACTUAL REQUIREMENTS. WITH THIS NEW SYSTEM, THE INFORMATION WILL BE AVAILABLE FOR ANYONE--THE REPAIR TECHNICIAN ON THE SHIP, THE PLANNER FOR A SCHEDULED MAINTENANCE AVAILABILITY, OR THE DEVELOPER OF THE ALLOWANCE PACKAGE OF SPARES AND REPAIR PARTS. THIS IS A MAJOR IMPROVEMENT IN THE WAY WE DO BUSINESS.

DEMAND FORECASTS

- WE ARE DEVELOPING OR ADAPTING EXPERT SYSTEMS TO SUPPORT AN

ARRAY OF INVENTORY MANAGEMENT FUNCTIONS. WE ARE CURRENTLY TESTING A MANAGEMENT SYSTEM THAT ENABLES OUR STOCK POINT INVENTORY MANAGERS TO RAPIDLY REVIEW MATERIAL ON ORDER IN MORE DETAIL, SO THEY CAN CONCENTRATE ON OTHER TASKS, SUCH AS MORE ACCURATE DEMAND FORECASTING THROUGH INCREASED CUSTOMER INTERFACE, TASKS THEY DID NOT HAVE TIME TO DO COMPLETELY IN THE PAST.

- SIMILARLY, WE ARE DEVELOPING A NUMBER OF APPLICATIONS IN OUR NEW INVENTORY CONTROL POINT SYSTEM DESIGNED TO MINIMIZE THE NUMBER OF TIMES THE INVENTORY MANAGER MUST INTERCEDE WITH THE DATA PROCESSING SYSTEM ON ROUTINE OPERATIONS. WE ARE ALSO PURSUING PROJECTS TO REFINE OUR DEMAND FORECASTING PROCEDURES, AND TO INCORPORATE REVISIONS TO ECONOMIC ORDER QUANTITIES WHEN APPROPRIATE TO TAKE ADVANTAGE OF PRICE BREAKS OR OTHER CRITERIA NOT GIVEN ADEQUATE WEIGHT IN OUR CURRENT COMPUTATIONAL PROCESSES. THE IMPROVED SPEED AND CAPACITY OF MODERN SYSTEMS GIVES US THESE OPTIONS.

- WE HAVE SEVERAL PROJECTS IN PROCESS WHICH ARE ON THE LEADING EDGE OF TECHNOLOGY AND ARE DESIGNED TO UTILIZE RAPIDLY EVOLVING DIGITAL DATA STORAGE AND TRANSMISSION CAPABILITIES. THE RAPID ACQUISITION OF MANUFACTURED PARTS (RAMP) PROJECT WILL ENABLE US TO QUICKLY PRODUCE LOW USAGE SPARES ON DEMAND. ANOTHER INITIATIVE WILL USE DIGITAL TECHNOLOGY TO IMPROVE STORAGE AND ACCESS FOR CRITICAL

TECHNICAL DATA NEEDED TO EXPEDITE PROCUREMENT ACTIONS.

PROGRAM CHANGES

- WE HAVE RECENTLY DEVELOPED THE CAPABILITY OF HAVING WEAPONS SYSTEM PROGRAM DATA ON LINE AND AVAILABLE TO OUR SHIPS PARTS INVENTORY MANAGERS. THIS MEANS WE CAN NOW SAVE THE DELAY TIME FORMERLY USED FOR WRITING INFORMATION DOWN IN THE PROGRAM MANAGER'S SHOP, TRANSMITTING IT TO THE INVENTORY CONTROL POINT, AND PUTTING IT IN A USABLE MODE FOR THE REQUIREMENTS DETERMINATION PROCESS. WITH THE DYNAMIC NATURE OF PROGRAM CHANGES IN THE FORESEEABLE FUTURE, THE CAPABILITY TO SAVE MONTHS IN TRANSMITTING THIS INFORMATION WILL MEAN MORE ACCURATE PROCUREMENT REQUESTS, ESPECIALLY FOR ITEMS WHICH SUPPORT STRETCHED OUT OR CANCELLED PROGRAMS.

- INFORMATION EXCHANGE TELECOMMUNICATIONS NETWORKS, SUCH AS OUR NAVY LOGISTICS NETWORK, ARE ENABLING US TO SHARE INFORMATION MORE READILY THROUGHOUT OUR SUPPLY SYSTEM. WE WILL SOON HAVE THE CAPABILITY TO PROVIDE EACH STOCK POINT THE ABILITY TO SEE WHAT OTHER ACTIVITIES ARE STOCKING, SO IF THERE IS A CRITICAL REQUIREMENT FOR A CUSTOMER, IT CAN BE IMMEDIATELY REFERRED TO THE CLOSEST ACTIVITY WITH STOCK AVAILABLE. WE CAN DO THIS TODAY FOR NAVY MANAGED MATERIAL, BUT HAVE NOT HAD THIS CAPABILITY FOR MATERIAL MANAGED BY

DOD ACTIVITIES. BY PROVIDING INTRA-NAVY VISIBILITY OF OUR SUPPLY STATUS, WE WILL BE BETTER ABLE TO USE LONG SUPPLY AT ONE ACTIVITY TO FILL THE NEEDS OF ANOTHER.

THE OVERALL INTENT OF ALL OF OUR EFFORTS IS TO REFINE OUR UNDERSTANDING OF THE COMPONENTS OF OUR INVENTORIES, AND TO MAKE THE BEST POSSIBLE DECISIONS TO ENSURE THESE INVENTORIES ARE FULLY JUSTIFIED AND THAT LONG SUPPLY IS MINIMIZED, WHILE MAINTAINING OUR PROPER CONTRIBUTION TO READINESS AND SUSTAINABILITY.

I WOULD BE REMISS IF I DID NOT NOTE THAT DESPITE OUR BEST INTENTIONS AND THE NUMEROUS IMPROVEMENTS WE HAVE IN-PLACE OR UNDER DEVELOPMENT, WE WILL ACQUIRE SOME LEVEL OF INVENTORY WHICH HINDSIGHT WILL TELL US WE SHOULD NOT HAVE BOUGHT, AND WE CANNOT HELP BUT MAKE SOME MISTAKES. THE NAVY USES A VARIETY OF ITEMS WITH LIMITED POPULATIONS AND UNPREDICTABLE DEMAND. THERE IS AN INEVITABLE ELEMENT OF RISK IN THIS ENVIRONMENT. NONETHELESS, WE ARE FULLY COGNIZANT OF OUR RESPONSIBILITY FOR STEWARDSHIP OF THE RESOURCES AVAILABLE TO US, AND WILL DO EVERYTHING POSSIBLE TO CONTINUE TO IMPROVE OUR PERFORMANCE.

THE STRUCTURE WE ARE USING TO FOCUS OUR INITIATIVES INVOLVES A FORMAL INVENTORY MANAGEMENT IMPROVEMENT PROGRAM (IMIP), WHICH INCLUDES A DETAILED ACTION PLAN AND SEMI-ANNUAL "SUMMIT" MEETINGS OF SENIOR MATERIAL MANAGERS FROM THROUGHOUT THE NAVY. I PERSONALLY CHAIR THE IMIP MEETINGS, AND AM RESPONSIBLE FOR PROGRESS ON THE RELATED ACTION ITEMS.

I WILL CLOSE THIS SECTION BY EMPHASIZING THE DEGREE TO WHICH EFFECTIVE INVENTORY MANAGEMENT REMAINS A PEOPLE-INTENSIVE PROCESS. DATA PROCESSING IMPROVEMENTS AND OTHER TECHNOLOGICAL ADVANCES HELP US KEEP UP WITH A VERY DYNAMIC SUPPORT ENVIRONMENT, BUT FOR MANY ELEMENTS OF OUR BUSINESS, WHETHER INVOLVING JUDGMENTAL ANALYSIS OR SHEER PHYSICAL LABOR, THERE IS NO SUBSTITUTE FOR PEOPLE. THUS OUR CONTINUED SUCCESS AND FURTHER IMPROVEMENT ARE DEPENDENT ON ADEQUATE OPERATIONS AND MAINTENANCE FUNDING OF OUR SUPPLY SYSTEM OPERATIONS.

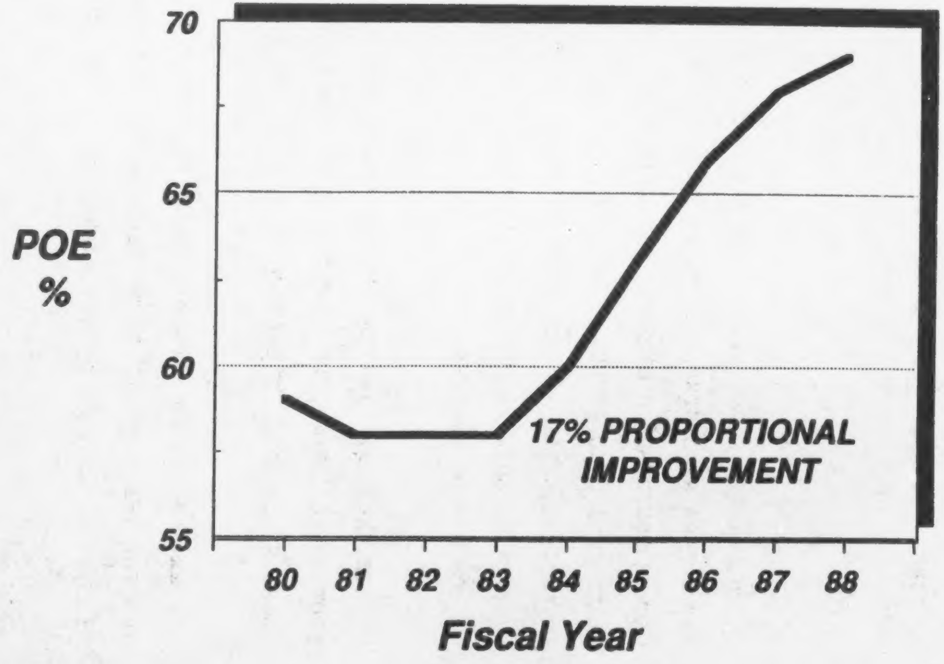
CONCLUSIONS

GROWTH IN NAVY INVENTORIES HAS MADE A MAJOR CONTRIBUTION TO THE SUPERB READINESS POSTURE OF OUR COMBAT FORCES. MUCH OF THE GROWTH CONTRIBUTED DIRECTLY TO SUPPORT OF NEW OR UPGRADED SHIPS, AIRCRAFT AND EQUIPMENT. THE VAST MAJORITY OF OUR EXISTING INVENTORIES WILL BE USED TO MEET FORECAST DEMAND OR WILL SERVE AS PROTECTION AGAINST CONTINGENCY REQUIREMENTS OVER THE LIFE CYCLE OF OUR WEAPON SYSTEMS.

WE HAVE MANY INITIATIVES UNDERWAY AND PLANNED TO MINIMIZE ADDITIONAL LONG SUPPLY AND POSITION OURSELVES TO BEST UTILIZE EXISTING STOCKS. I BELIEVE WE ARE ON THE RIGHT TRACK.

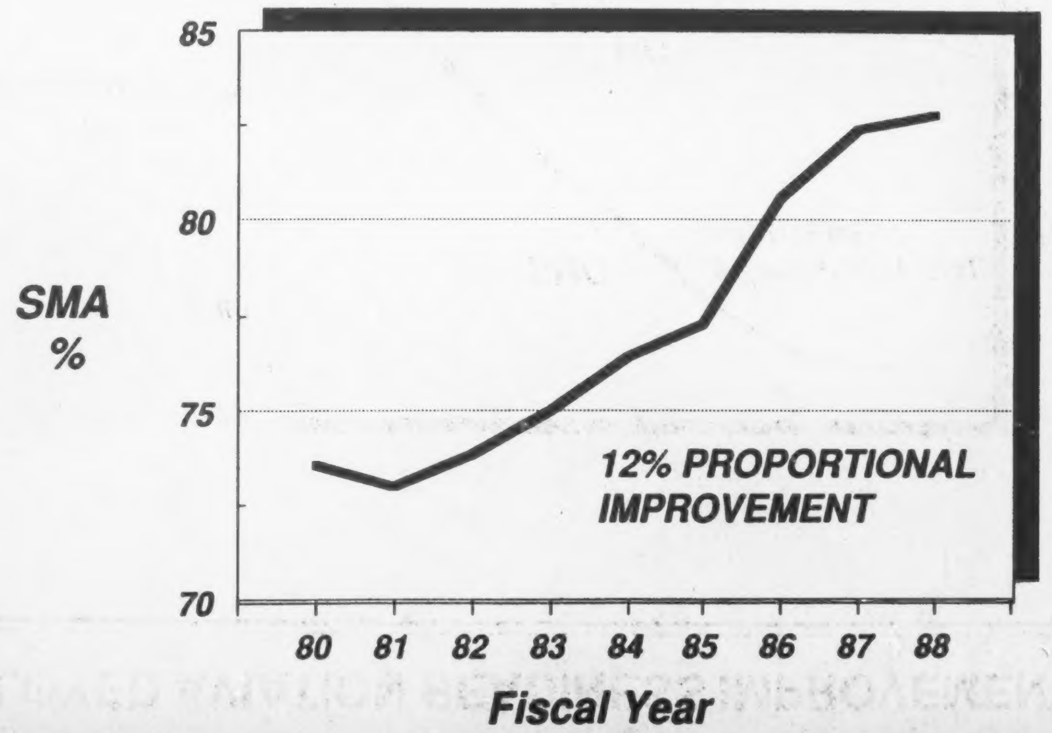
MR. CHAIRMAN, THIS CONCLUDES MY PREPARED STATEMENT. THANK YOU FOR THE OPPORTUNITY TO ADDRESS THE SUBCOMMITTEE. I WOULD BE PLEASED TO RESPOND TO ANY QUESTIONS YOU MAY HAVE.

POINT OF ENTRY EFFECTIVENESS



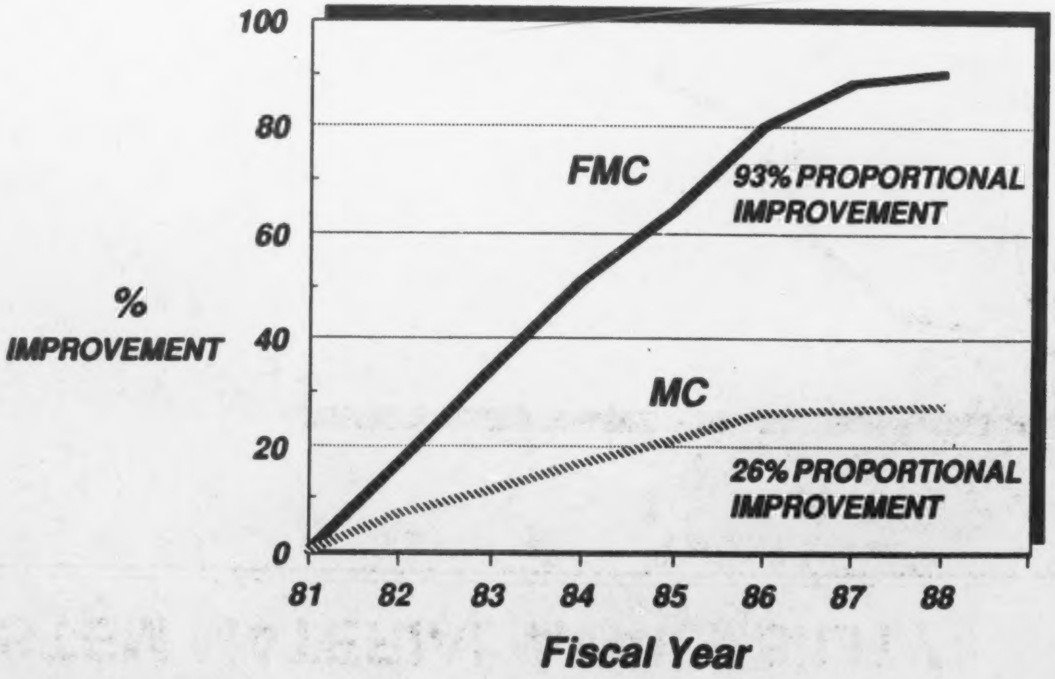
ATTACHMENT A

SYSTEM MATERIAL AVAILABILITY



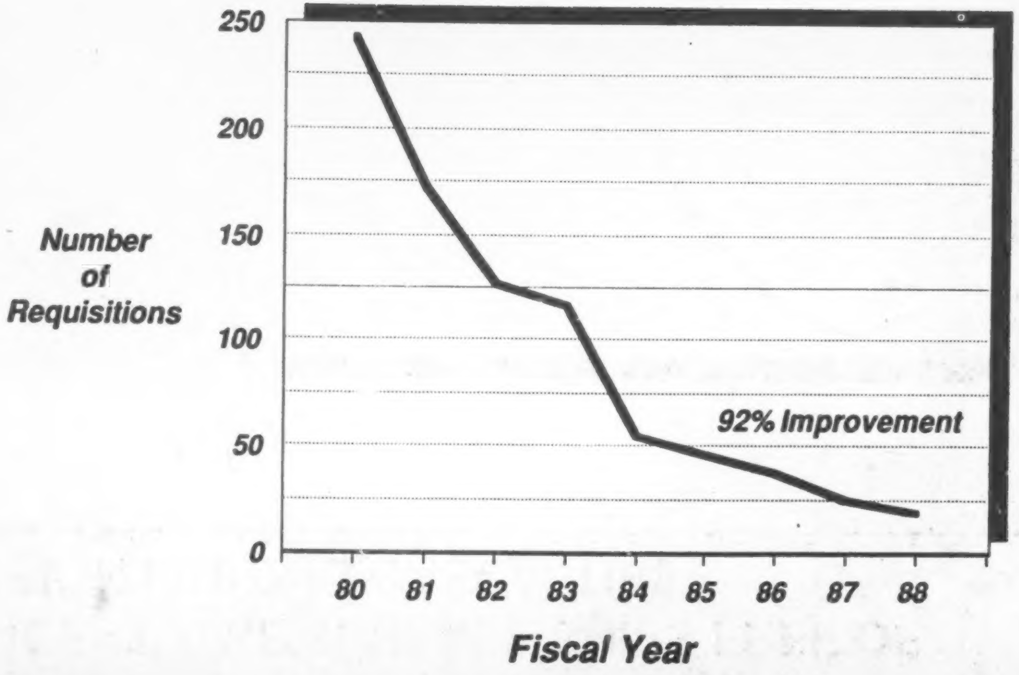
ATTACHMENT B

DEPLOYED AVIATION READINESS IMPROVEMENTS



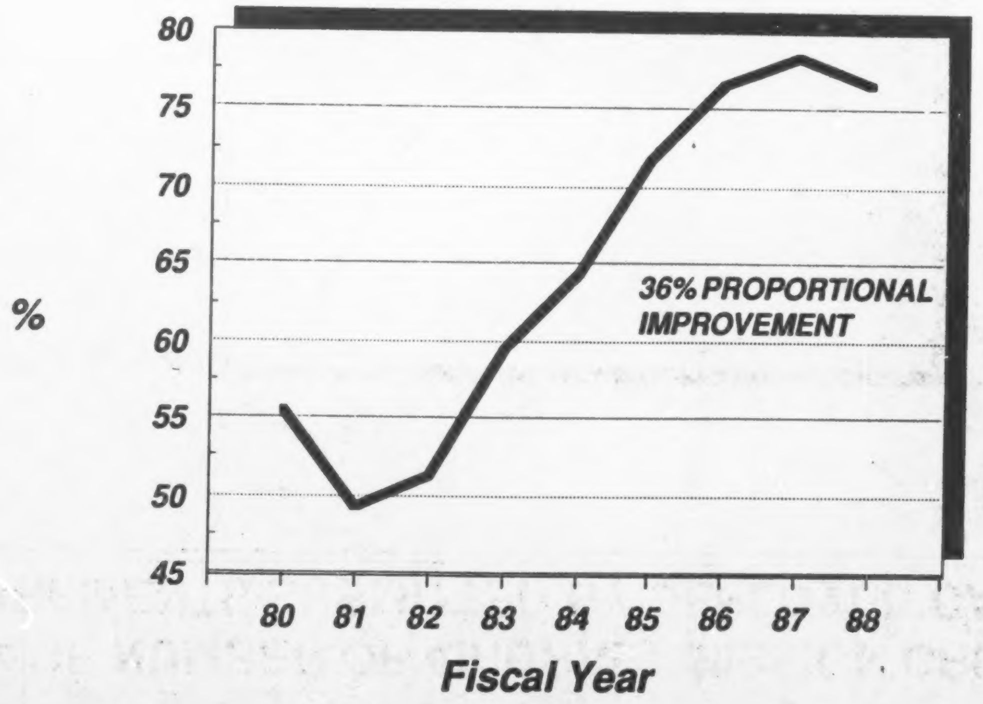
ATTACHMENT C

AVERAGE NUMBER OF AIRCRAFT MISSION CRITICAL REQUIREMENTS SUBMITTED BY DEPLOYED CARRIERS



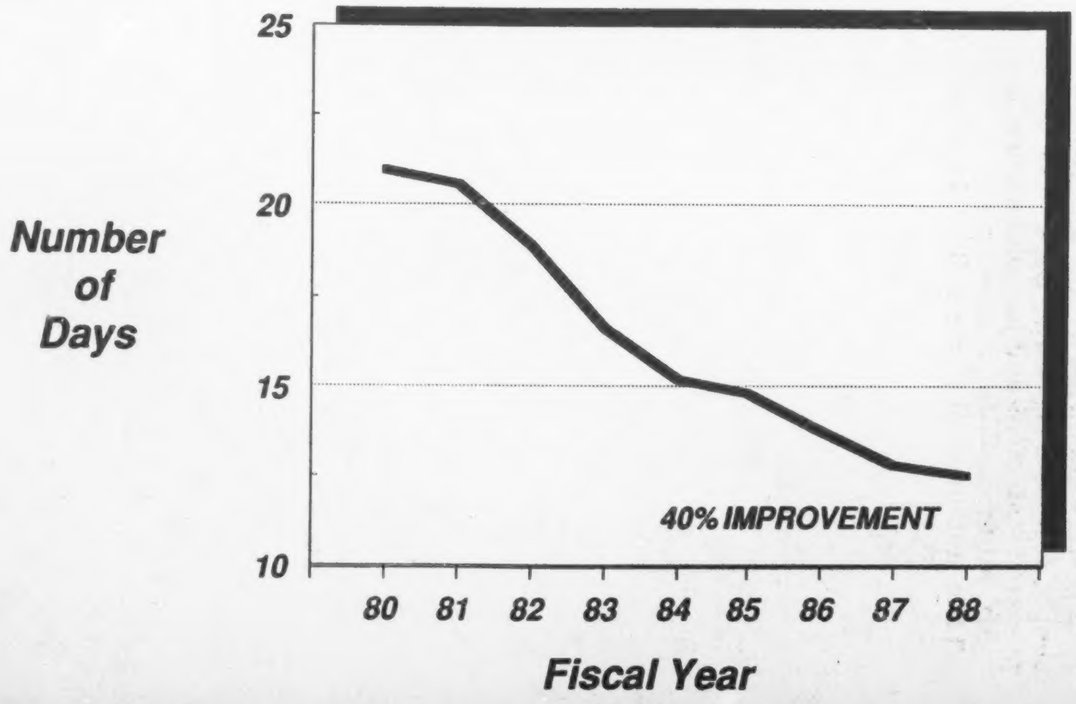
ATTACHMENT D

PERCENT TIME SURFACE SHIPS FREE OF MISSION LIMITING CASUALTIES



ATTACHMENT E

REQUISITION RESPONSE TIME FOR MISSION CRITICAL SPARE PARTS - SURFACE SHIPS



ATTACHMENT F

Mr. **Murtha**. General Bracken.

General **Bracken**. You are probably wondering what a dumb fighter pilot is doing over here talking to you today.

Mr. **Murtha**. What I can't understand is how you got into a fighter airplane.

SUMMARY STATEMENT OF GENERAL BRACKEN

General **Bracken**. I think I bring a user perspective to the logistics business. I have been on the receiving end of the logistics support posture in the seventies and early eighties. I try to keep it simple. If it is all right with the Committee, I would like to insert my prepared statement and just make some general comments.

Mr. **Murtha**. Without objection.

[The statement of General Bracken follows:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON DEFENSE
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: SPARE PARTS

STATEMENT OF: MAJOR GENERAL EDWARD R. BRACKEN
DIRECTOR LOGISTICS PLANS AND PROGRAMS
DEPUTY CHIEF OF STAFF/LOGISTICS & ENGINEERING
HEADQUARTERS, UNITED STATES AIR FORCE

MAY 1989

NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON APPROPRIATIONS
UNITED STATES HOUSE OF REPRESENTATIVES

Mr. Chairman and Members of the Committee, I appreciate the opportunity to appear before this committee to discuss Air Force spares management. This issue is near and dear to my heart, and one that touches the working lives of thousands of dedicated Air Force military and civilian people who daily make readiness a reality. I earnestly believe that despite the well publicized criticisms of our stewardship, the Air Force, with the support of Congress, has significantly improved the readiness and sustainability of our combat forces over the last eight years. Unfortunately the widely circulated reports of inventory growth, poor quality, and inventory accountability have too often over-shadowed the real improvements in military capability that we have made since 1980. The revitalization of our forces is a true success story that has been virtually ignored by the public and the media.

The facts speak more eloquently than I ever could. For example, Air Force aircraft mission capability (MC) rates have increased by 22.9% from 66.3% to 81.5% from FY 80 to FY 88. This means that on a given day we have nearly 1400 additional aircraft ready to fly. A big contributor to that real improvement in readiness had been a 40% reduction in the total number of aircraft that are not mission capable because of spare parts shortages. From FY 80 to FY 88, virtually all of the important readiness and supply indicators that we measure have improved significantly. For example, cannibalization rates have dropped by 31% since 1980. The improvements in sustainability have been equally impressive. In FY 88, the tactical fighter and strategic airlift (C-5, C-141) forces were capable of flying 42% more combat sorties during the first 30 days of the war than in FY 81. Our current FY 89 sortie capability which is based on FY 87 and prior funding is at 99% for both tactical and strategic airlift aircraft.

These improvements are even more impressive when you consider that from FY 80 to FY 88 the overall aircraft inventory grew (3.8%) and more importantly the force mix has been radically altered. Gone are the old F-105s, F-106s, and one-third of the F-4s. They have been replaced by significantly more reliable, capable, and complex F-15s and F-16s. Overall, the fighter/attack forces have increased by 608 aircraft from FY 80 to FY 88, but perhaps more significantly, 27% of the aircraft that made up the FY 80 force are no longer in the inventory in FY 88 and 36% of the FY 88 inventory did not exist in FY 80. That's an overall swing of over 2800 fighter aircraft. Additionally, an often overlooked fact is that there are major configuration differences in the F-15 and F-16 aircraft as we improve each new production block. Even the older aircraft that we have retained in our inventory are not really static since they undergo significant configuration change through modifications. Over the period from FY 80-88 we invested over $21.2 billion in aircraft modifications. These configuration changes drive new requirements for both peacetime and wartime spares.

From a spares inventory management perspective, the Air Force must support a multigenerational range of aircraft from the C-47 for our Foreign Military Sales (FMS) customers to the initial provisioning for the Advanced Tactical Fighter currently under development. In addition to the changes in force mix and configuration, the operating tempo of the Air Force has also increased. Flying hours have increased 6.9% from FY 80 (3,124,874 hours) to FY 88 (3,340,085 hours). For example, the average hours flown per fighter crew per month increased by 25% from FY 80 to FY 89 (from 15.6 hours to 19.5 hours). Consequently, it has been very challenging to improve readiness and sustainability in the face of these force increases, turnover, configuration changes, and increased operating tempo. Compounding this challenge has been a series of needed, but manpower intensive procurement reforms aimed at improvements in competition, pricing, reliability, and quality. In response to the increased workload resulting from these acquisition initiatives and increased inventory and operating tempo, Air Force Logistics Command (AFLC) was given an increase of 2400 supply and contracting operations people in FY 85. In general, the Air Force has responded well to these reform measures. For example, since FY 84 competition for spare parts has increased significantly (from 24 to 47% measured by dollars) saving the Air Force over $848 million.

However, due to severe budget constraints and congressionally mandated Operations and Maintenance (O&M) cuts, AFLC has had to reduce 6,648 people representing 15% of the supply operations workforce from the end of FY 86 through the end of FY 88. This reduction brought FY 88 AFLC O&M manpower below the 1980 level. These cuts in civilian manning to such core logistics functions as system and item management, engineering, technical services, warehousing, and contracting have impacted our ability to manage our inventory as efficiently and effectively as we should. Given the demographics of our workforce exacerbated by two consecutive years of hiring freezes and early-out retirements, experience levels of critical spares management and contracting specialties are decreasing. AFLC has hired back over 3,600 new people in FY 89 to partially restore the workforce to an acceptable level. It is imperative that we stabilize and maintain a quality logistics civilian workforce which is critical to both the readiness and sustainability of the Air Force and the efficient expenditure of national resources.

We are all too aware that the improvements in Air Force readiness and sustainability have not come cheaply. The 42% improvements in tactical fighter and strategic airlift sustainability has been largely the result of investing over $5.5 billion in aircraft war reserve investment spares since FY 80.

We have essentially doubled the value of our aircraft war reserve investment inventory. In addition, we have invested additional billions of dollars in initial and replenishment peacetime operating stocks over the same period. In fact, our aircraft investment spares inventory has grown from $10.5 billion in FY 80 to $28.5 billion in FY 88. This growth in inventory has been a cause of concern to some auditors and others who have gone so far as to suggest that the inventory is growing out of control. This allegation needs to be viewed in perspective because it simply ignores the facts.

First, if you view the growth in dollar inventory as a function of the value of the end-item inventory (aircraft and equipment) that the spares support, then the relationship of spares to inventory has not changed. It simply takes a higher dollar value of spares to support a higher dollar value of inventory because spares like the aircraft they support cost more today then before. For example, the average unit cost of an aircraft investment spare has gone up 37% since FY 82. Second, while the overall growth in aircraft force structure has been relatively small (+343 aircraft) there has been a significant change in the force mix and configuration as already discussed. The bottomline is simple. You can't use F-4 parts to fix F-15s and F-16s. Combine the force mix and configuration issue with a change in disposal policy that essentially requires us to retain our spares inventory if we still retain any of the aircraft and the effect is dramatic. Growth of new inventory to support new weapon systems e.g. F-15I16, B-1, A-10, C-5B, etc., plus retention of assets for retiring B-52 and F-4 result in overall inventory growth. Moreover, even when we retire the F-4, we are required to retain F-4 spare parts to support FMS requirements. In fact, the number of aircraft investment spare items managed has grown by 18% since FY 82. The force mix, configuration change, and disposal policy issues, together with other specific program and policy initiatives, have been primarily responsible for the growth in so-called long supply inventory. Long supply is a fairly complex subject replete with technical jargon but the bottom line is that long supply inventory is those parts that are not required for use within the next two years which is the time horizon we generally use to plan purchase requirements. No consideration is given for any use beyond that narrow window. It does not matter if the specific asset is needed in 2 years plus 1 day or 2 years plus 10 years it is still long supply. Long supply also includes items we consciously bought in advance of need such as life-of-type buyouts or the B-1B expanded advanced buy as well as items we are holding for potential FMS sale. The use of this data to portray the health of our overall inventory and management processes is very misleading. We acknowledge that long supply inventory has grown (from $2.5 billion to $7.6 billion for aircraft investment spares FY 80 to FY 88) and will probably continue to grow for the same reasons that we've already discussed. However, the portion of our aircraft investment spares inventory in long supply that is actually excess to need has remained relatively stable at around $400 million since FY 80.

We also acknowledge that our systems and our people do make mistakes. Our ability to finitely predict the exact usage of parts three to four years hence is not 100% accurate. If for no other reason than force structure and flying hours are changed each intervening year during the annual budget reviews. Audits and inspections tend to focus their findings on the problem items and often give a very distorted picture of the actual health of the overall process. Every item manager knows that they will be judged by the 1% of the items that have a problem and ignored for the 99% of the items successfully managed. To put it in perspective, if our judgement was 99% correct for the over 830,000 items we manage, then we would be in error on 8,300 items each of which is a potential audit candidate. Given the people we have, the time available, and the complexity of the process, as a management strategy we must focus on the high dollar consumers in order to mitigate the financial impacts of potential errors.

We are constantly refining our existing policy and procedures to improve our management efficiency. We wholeheartedly endorse Total Quality Management as a way of life and AFLC currently has numerous Process Action Teams actively engaged in developing and implementing significant improvements in every aspect of spares management from requirements determination to contractor quality. Long-term improvements in our ability to manage our inventory requirements and on-hand inventory are largely tied to our Logistics Management System (LMS) modernization efforts. The Stock Control and Distribution System, Requirements Data Bank, Weapon Systems Management Information System (WSMIS), and Contract Data Management System ADP projects are vital to both our short and long term efforts to improve effective resource management.

For example, under the LMS umbrella we have already made significant improvements in determining both peacetime and wartime spares requirements during the last two years. Just last summer we replaced the peacetime operating spares safety level computation for investment items with a new algorithm that computes requirements to achieve optimum aircraft availability instead of minimizing back-orders. While this computation improvement has not significantly changed the overall dollar requirements, it has significantly changed the mix of items that need to be repaired and purchased.

Recent articles have highlighted the results of a continuing series of tests called Coronet Warrior that the Tactical Air Command (TAC) has undertaken in conjunction with Air Force Logistics Command to refine the composition of the war reserve spares kits that we deploy with our fighter squadrons. One of the purposes of these tests was to validate a RAND/AFLC developed model embedded in WSMIS that provides a detailed assessment of a unit's wartime spares sortie capability based on its tasking and on-hand war reserve spares. In fact this model is now routinely used by the Tactical Air Forces for determining the supplies portion of each units C-level. AFLC was in the process of adapting this assessment tool to the development of the war reserve requirements, so it was vital to validate the model with real world exercise data. As expected, there was some variance between the real world usage data and the projected data. As a consequence, TAC and AFLC updated the new usage information and recomputed the kits producing substantial cost avoidances which have been incorporated into the FY 90/91 budget. We are conducting similar tests for conventional strategic bombing and theater airlift forces. An adaption of this same model is being developed to automate the war reserve spares buy and repair induction process. These two initiatives represent a major step forward in the development of realistic requirements tied to both peacetime and wartime operational objectives.

One of the most frequent criticisms of the Air Force is that, despite the investment and growth in spares inventory and the management improvements over the last eight years, units are still too often forced to cannibalize and use war reserve spares to meet daily operational flying demands. This criticism is usually bolstered by a bevy of isolated audit reports "proving" that the Air Force has bought the wrong items. This criticism is both myopic and uninformed. The objective of spares management is relatively simple -- have the right part available at the right time wherever and whenever needed. The art of logistics is achieving this rather simple objective as efficiently as possible. Unfortunately, the practice is somewhat more complex for two reasons.

First, as we've already stated, the operational art of precisely predicting three to four years in advance where and when each demand is going to occur for over 830,000 Air Force managed parts spread across over 47 different types of aircraft flying over 3 million hours per year from bases world-wide is not perfect. This is perturbated by the fact that inventory levels and mix, flying hours, operational taskings, aircraft configuration and resource levels are under continuous revision as we review and build each year's annual program. Predicting which items, much less how many will be needed during initial provisioning for systems that haven't fully left the drawing board or test environment is an art unto itself. The bottomline is that, despite our best attempts to model the requirement, the process is still dynamic and therefore uncertain.

Second, both critics and supporters tend to focus on pieces of the puzzle such as spares acquisition or depot maintenance while ignoring the whole picture. If there is a message that I hope to leave with you today it is an appreciation of the integration of the spares process and the need to balance resources to achieve the end objectives. In order to make spares available when needed, we must balance new investment spares, repair (both base and depot), Stock Funded expense spares, transportation, military and civilian manpower, and adequate communication and automation. Each of these elements is an integral link in the total process that produces spares availability. If one or more elements of the process are broken, then the whole process produces less than the desired result. To support the peacetime flying training program, we buy new investment spares primarily to replace condemnations and accommodate changes in the spares pipeline. The often overlooked fact is that the vast majority of aircraft peacetime investment spares demand is satisfied through repair not acquisition of new spares. In wartime this pattern is generally reversed and war reserve spares become the dominant source of supply. Repair is accomplished at the operating base and at the depot in a closely integrated process. The Stock Fund, which is primarily reimbursed either directly or indirectly by the Operations and Maintenance appropriations, provides the repair parts needed to support the repair process.

At the base level, we need adequate numbers of skilled military personnel and at the depot we need adequate numbers of skilled civilian maintenance and supply personnel. The first and second destination transportation accounts (also O&M funded) support the movement of both serviceable and unserviceable parts to and from the depot and contractors. The glue that makes this process work is communications and automation. The simple fact today is that we would not be able to operate for any extended time without automation.

When we assess our needs for spares, we have to look at the total picture because, as logisticians we understand the need to balance these resources. For example, within Central Supply and Maintenance O&M funding, we may find it necessary to reallocate funding between depot maintenance, transportation, civilian pay, and automation in order to optimize overall readiness. It does little good to operate the depot maintenance complex at high capacity if we don't have the people to determine the requirements; order the repair parts; issue shipping instructions; inventory, store and issue the parts; buy the parts and contract depot maintenance services; and, the transportation dollars to move the parts to and from the depot maintenance complex. Readiness suffers either way so the real issue is the flexibility to balance the resources to mitigate the impact.

Achieving the proper balance is difficult at best. This problem is greatly complicated by having to deal with differing lead-time of the components involved. For example, the investment spares bought today support estimated demands in FY 91 while FY 89 depot maintenance dollars repair assets for use this year. The trade-off gets very complex in a hurry. For this reason, we need some flexibility in both budget and execution. We implore you to grant us some latitude to accommodate the inherent imprecisions in our process, programmatic changes, and most especially imposed resource reductions.

The reason for our recent problems with parts availability, which began in the third and fourth quarter of FY 88 and persist into FY 89, is not that we bought the wrong parts or lack of assets but underfunding of depot maintenance and transportation. By design, our system has a great deal of resilience and in the short-term can accommodate availability problems driven by funding problems in the discrete elements. For a time, our units can maintain relatively high readiness (mission capability rates) by increasing cannibalization, war reserve spares usage, overtime, and intensive management of critical items. In effect, we are trading peacetime readiness for wartime sustainability. The depot maintenance shortfall has impacted every command in the Air Force. In addition, the overseas commands have been particularly hard hit by the transportation shortfalls as we have been forced to divert all but the highest priority items from air to surface shipment. This diversion increases the transportation time from about 11 days to over 50 days for the overseas units.

I wish I could say that the situation was going to be short-lived, but I can't. While both transportation and depot maintenance funding have improved in FY 89/90/91, they are not fully recovered. Although the overall FY 88 readiness indicators looked exceptionally good, the third and fourth quarter FY 88 and first quarter FY 89 data is showing a negative trend. Unfortunately, we expect the negative trends to continue into FY 90/91 as we start to feel the impact of congressional cuts to aircraft investment spares funding in FY 88 and FY 89 which reduced us to supporting only 79% and 83% of the FY 90 and FY 91 peacetime operating requirements (2 year leadtime for deliveries). Our FY 90/91 budget again fully funds our aircraft peacetime operating spares requirements, but we are leadtime away from relief. We have also included a modest investment in war reserve spares which would represent the first planned investment in sustainability since the FY 88 congressional cut eliminated aircraft investment spare war reserve funding. We need the strong support of this committee, and the Congress, to help us reverse the current negative readiness trends and ensure that our forces are adequately supported.

Mr. Chairman, I want to thank you and the distinguished members of the committee for your past support of Air Force readiness and sustainability and for allowing me the opportunity to appear today to tell the Air Force story. I am eager to address any questions you may have.

FORECASTING REQUIREMENTS

General **Bracken**. I love flying jets. I also love the logistics business. The guys with greasy fingernails are the guys in the trenches that make it happen.

Computing what the requirement is for spares is a tough job. It is difficult to forecast what we need to buy, when we need to buy it, and how much, and for new weapon systems, particularly where we have no failure patterns, it is even more difficult. The provisioning problem is compounded by those factors.

The B-1 is a good example of that. We have provisioned almost 25,000 items for that airplane and of that we have some problems, 58 or 60 or so problem items which the GAO identified, and we are working on the problems.

We have had some successes in that area as well. We have had failures, too, in terms of predicting what the failure pattern is going to be.

For example, strobe light on an airplane, that item on most jets has an operating time in excess of ten thousand hours.

When we provisioned that item for the B-1, we decremented that somewhat because it was a new light, but we are actually experiencing 464 hours in that light. So we missed it on the downside.

Mr. **Murtha**. In the GAO report dated July 1988, I see the contractor projected 5,495 hours. The Air Force went along with that, and you are actually getting 236 hours—how could they be that far off?

General **Bracken**. I think the problem is the environment of the airplane that we put it in. It depends upon the location on the jet. I think I will use that as an example to portray to you the difficulty we have in forecasting requirements, particularly for new weapon systems.

In some ways it is an art, not a science. For example, in March of 1987, we ran our first projections on what our 1990 requirements were to support the 1992 flying hour program. In March of 1988 we ran our first Air Force Program Objectives Memorandum—POM—computation for the 1990 President's budget for that same 1992 flying program, and we will make one more adjustment, as we speak today, a computation for what we are actually going to buy. So we will make three refinements on that budget projection as we move from the POM to the program budget that is presented to the Congress today.

We account for that process in the market dynamics that we have to deal with, such as pricing and potential terminations, et cetera. For example, in developing the 1989 budget, we took almost $320 million out of our spares requirement as we moved from the initial POM to the President's budget. There is a lot of uncertainty in that process. Failure patterns, force structure and OPTEMPO, for example, if the Congress adds airplanes to our force structure and we don't add the spares that go along with them, we are out of balance in supportability of that weapons system.

If we change our modification plans, that also distorts the picture. If we change our labor and material rates in the repair process, that impacts the repair forecast for repair dollars. Nonetheless, we are striving to develop better prediction tools and models for the peacetime operating stocks, the war reserve materials and the initial spares that we have to buy.

We are developing better models that stress aircraft availability goals, and we use exercises like Coronet Warrior that General Russ briefed you on at TAC to validate those models to give us a better predictive tool on what those requirements are. In doing that, we are able to adjust the requirement down as we have done in the budget which is before you now. I would remind you that that requirement is still under-financed in the budget.

MISSION CAPABLE RATES

How well have we done? Compared to the days when I was a Wing Commander in the 48th Tactical Fighter Wing, I used to come to work in the morning and have 30 jets on the average broken for about 150 parts. I recently visited that wing, and they have two or three airplanes short a total of 10 or 15 parts. Our overall mission capable rates have increased from 66 percent to 82 percent. Our sortie utilization is at an unprecedented high rate. Our fighter pilots are flying 19 hours a month and ten or eleven sorties.

FLYING HOURS

Mr. **Murtha**. In those days when you were the Wing Commander, they were flying what, ten or twelve hours?

General **Bracken**. I was lucky to get my crews one sortie a week.

Mr. **Murtha**. So you were flying a lot less, and that meant we had a lot more accidents. Isn't the accident rate in the Air Force at the lowest level it has ever been?

General **Bracken**. It was low then, too, because we paid attention to detail, and we made sure that when we issued that kid a jet, it was a good jet. We strived very hard to not give them a bad airplane.

Mr. **Murtha**. When you are flying half the hours, there is a risk.

General **Bracken**. The quality of the flying time is the best that we have ever given the pilots. It is demanding and preps them to go to war. If we can get those guys the experience they need—in the Vietnam War, the first ten sorties the kids were at risk. They are no longer at risk because there is training that we give them and things like Red Flag on the West Coast in the Nevada Complex.

Mr. **Murtha**. You had less flying hours, so the plane wasn't used as often, and yet you still had a much higher percentage down because of lack of spare parts than you have today?

General **Bracken**. Yes, sir. The risk was much higher.

Mr. **Murtha**. So it is even better than the figures that you are indicating?

General **Bracken**. Yes, sir. In that same time period, from 1980 to 1988, we brought down our percentage of non-mission capable airplanes, a 40 percent reduction in that. Our cannibalizations—CANNS—decreased by 30 percent. We can fly 40 percent more combat sorties than we were able to in the early 1980s.

WAR READINESS SPARES KITS

I think we spent our bucks wisely. When you were at Langley, you queried General Russ about withdrawal from the war reserve kits. We are doing it today. We don't put a box around the kits, and we shouldn't, because we need those parts to fly those airplanes at the rate we have. We are going into the kits because of the O&M shortfalls that we had in 1988 when we lost almost $400 million in depot maintenance support in the 1988 timeframe.

The reason we are going into the kits is not because we don't have the right mix in the kits but because we haven't had the repair dollars. Our inventory in the Air Force is highly leveraged. We turn it over four-and-a-half times a year. Seventy percent of that turnover is done at the field level. Thirty percent is done at the wholesale level. It takes a lot of work to do that, but we got leverage out of those spares. We have cut our repair dollars primarily in the spares and the engine arena.

That forces our guys to go to war reserve kits. Our CANNS now are starting to go up. We are looking at the leading indicators. If you look at Mission Capable (MC) rates and utilization rates, they are staying pretty constant. We are going into war readiness spares kits—WRSK—more. We are burning more overtime in the field, we are working those kids harder.

We have holes in the airplanes. Just a year ago, we averaged 100 airplanes in TAC with two or three holes or components missing from each aircraft. That is not very much. Today we have about five holes in each airplane. We have more LRUs at the field level that are unserviceable. We have, in essence, sacrificed some sustainability to maintain a robust readiness base.

We did an analytical excursion on one F-16 squadron, even though at the funding levels that we have right now we can still maintain a 93 percent MC rate on the F-16, but we have lost 250 sorties in terms of its 30-day wartime capability.

FUNDING FOR SPARE PARTS

Compounding the problem is that our funding in spares is starting to erode. In 1988, we lost almost $500 million due to Congressional cuts. In 1989, we intentionally sent a budget here that had no sustainability funds, just peace-time operating stocks.

Mr. MURTHA. Say that again.

General BRACKEN. In 1988, Congress cut us to the tune of about $480 million in replenishment spares. Because of that cut, we were less than fully funded in peacetime operating stocks, and we were not able to finance any war reserve motorpool because of the 1988 cuts.

Mr. MURTHA. You are saying you requested, because of the fiscal pressures, less than you actually needed?

General BRACKEN. In 1988 we requested and we were cut down. In 1989 we didn't ask for any spares money for war reserves because we couldn't afford it in reaching a balanced budget at a lower rate than we had in 1988. In 1989 we were only able to finance peacetime operating stocks.

Mr. MURTHA. For the 1990 budget?

General BRACKEN. I will talk to that in a minute.

In the same time period, we have financed almost $21 billion of mods in the period from 1980 to 1988. We have modified our airplanes to that extent. In that same timeframe and extending out through the FYDP, we will make no kit updates. I am saying that we have changed the configuration of the airplane in this timeframe, and the war reserve funding that we had budgeted in the Reagan budget would not have permitted us any mod changes to the kits.

For instance, if I have an F-16 and I put a new jammer on it or put new avionics in the F-111 or put new avionics in the F-15 or re-engine the KC-135s, the Reagan budget I had initially would not have provided any financing for kit updates. Those kits do not stay static. That $5 billion investment that we made early on in the 1980-1988 timeframe will not stay static. It has to change as we change the configuration of the airplane.

What are we doing about that sustainability erosion? As we brought down our budget in the FYDP period, in 1990 we took $3 billion worth out of the Air Force's budget. In that process we were able to plus up $81 million of spares. That is not very much, but at least, it is a modest recovery in sustainability. Over the FYDP we plussed it up $350 million.

Mr. MURTHA. What is the total spares request for the Air Force?

General BRACKEN. It is $2.5 billion.

Mr. MURTHA. So it is $2.5 billion, and that includes the $81 million?

General BRACKEN. Yes, sir. It includes the add-on. We were able to add almost $1 billion across the FYDP. The rest went into maintenance, supply, stock fund issues, bits and pieces, and transportation. We will now be able to fund with that kind of financing some kit changes.

Our Chief is committed to protect readiness, and he is going to give up force structure and modernization to do that, and with some modest improvement in sustainability. But he has to keep that in balance. It doesn't do us any good to have 500 days or 300 days of bombs in our storage igloos if we run out of parts in 20 or 30 days. That is the kind of balance that we are trying to put into it.

The logistics business is a highly complex and integrated business. We have to have the right mix of spares, the right mix of repair dollars, the right mix of bits and pieces to support that repair line, the requisite transportation dollars to get it there, the information systems that give us the visibility on that process to make it happen, and good quality people.

We can't salami slice it, piecemeal certain components of that, because if we do, we put it out of balance. That is why Logistics Command and the air staff argue vigorously against fencing. Because when we fence a portion of a budget, we deny the guy the capability to react in a dynamic way to the problems he has to face. It is like Ford Motor Company. They build 6,000 cars a week at a plant. When they build those 6,000 cars, if we say you can build the cars, you can't have any money to transport them to where they have to go, or you can't buy the bits and pieces that you have to repair in that manufacturing process, or you can't have the information systems that give you real world visibility, or you don't have enough folks to do it, then they can't produce those automobiles.

LONG SUPPLY INVENTORY ISSUES

With respect to long supply issues, I don't think we are buying too much. The inventory on hand is a result of a corporate decision that the Congress supported vigorously in the 1984 and 1985 timeframe to correct the hollow force of the late 1970's. It was a corporate decision. We have built and purchased in the intervening years $23 billion of stocks. That is for peacetime operating stocks, initial spares and war reserve stocks.

In that same timeframe, we have 600 more fighters. The force mix has changed. We have gotten rid of the F-105's and the F-106's and the F-4's are going out. We now have F-15's and F-16's and B-1's and even within the F-15's and F-16's there are variances within the configuration of those airplanes. We are flying more. When we computed the requirement for those spares over the process of those eight years, it was valid. We have migrated some of it out of the valid period from the active inventory into areas of long supply.

Why? Because our force structure has changed. The mix has changed. We have intentionally made purchases integrated with production, buying spares in conjunction with production because of a shortened vendor base. B-1 is a good example of that. We did that because we didn't want to risk losing that vendor base. We have also increased 18 percent the number of line items we stock. The average price of those spares has also gone up 37 percent.

While all this has happened, the ratio of active spares to long-supply spares has remained constant since 1980. In other words, 75 percent of our inventory is still active as it was in 1980, and 25 percent is in long supply. Long supply can be defined this way—I brought four cigars to this meeting. I am going to chew them all sooner or later. I hope I brought enough. I brought one extra one just in case, but ultimately I will chew that cigar. That is valid inventory. Just because it is sitting there and I might not use it for a two-year period, which we call active inventory, if I use at the two-year plus one day, if it is one day outside of that window, then it is categorized as long supply. For every aircraft dollar that we have, we have invested 25 cents for spares. That is the same ratio we had in the 1980 timeframe; only $400 million of that on-hand inventory could be considered excess for disposal.

Mr. MURTHA. Go over that again.

General BRACKEN. In 1980, for every dollar of aircraft we had floating around our inventory, we had 25 cents worth of spares to support that airplane. Today for every dollar of airplane we have, we still only have 25 cents worth of spares to support that airplane.

Mr. MURTHA. You are telling me then you are managing it better?

General BRACKEN. We are managing it better because we have a bigger inventory with which to deal. We have a more complex and integrated inventory to deal with, but despite the force structure changes and the configuration changes of the airplanes and the mixes and the complexity of that, I am still able to achieve the same kind of spares support with respect to the investment dollars that I put against those airplanes.

Mr. **Murtha**. I am not sure I understand the timeframe that you are talking about. Are you comparing that to a timeframe when you had big buys of spares?

General **Bracken**. I am comparing it to the 1980 timeframe.

Mr. **Murtha**. I don't remember when we started pumping money into the inventory. Are you saying that the 25 percent is adequate, or are you saying it is not enough?

General **Bracken**. I am saying that is about right, sir.

Mr. **Murtha**. Twenty-five percent is about right?

General **Bracken**. Twenty-five cents on the dollar.

Mr. **Murtha**. So you are saying that the spare mix may be off and you will have a hard time calculating that?

General **Bracken**. No. I think we did a good job predicting what that mix is. I think it is about right. We have $400 to $500 million in there that will codify as potential excess, and because of this disposal policy and the way we have changed our system, where a human person has to intervene in that process to get rid of it, we have built that up to about the $400 or $500 million level.

Mr. **Murtha**. So you don't have a lot of examples throughout the system like you do with a new system where you have the fuel boost pump, the contractor projected 55,000 hours, the Air Force estimated 10,000, it ended up to be 3,300, and on with a list of projections which were way off?

General **Bracken**. Those are focused on 50 or 60 items that are critical items for the B-1 that we know we have a problem with. We are working those.

Mr. **Murtha**. Overall you don't have this problem?

General **Bracken**. No, sir.

Mr. **Murtha**. Overall your estimates are accurate in long and short supply?

General **Bracken**. To the best of our ability to predict that, yes, sir.

Mr. **Murtha**. But the management—we have spent an awful lot of money in management. For instance, we have put an awful lot of money into computers to increase your ability to manage the whole spares problem.

You are still spending 25 cents on the dollar, it seems to me you should be getting more because your management has improved so much.

General **Bracken**. But the weapon systems are so much more complex. The 25 cents that we spend on spares to support $1 worth of airplanes, I think that that is a good ratio to have, and that is what we are investing on spares.

Mr. **Murtha**. I understand that, but we have spent so much more to manage it and we are still spending the same amount per dollar for spares, 25 cents on the dollar——

General **Bracken**. Those are not management fees, that is the cost of the spares.

Mr. **Murtha**. I understand that, but on top of that we have spent all kinds of money to manage the spares.

General **Bracken**. With a significant reduction in people. We have moved into the real world of automation.

Mr. **Murtha**. So you are saying then that you are able to distribute your spares more efficiently with less people?

General **Bracken**. Yes, sir.

Mr. **Murtha**. But still you haven't been able to reduce the amount of spares you need?

General **Bracken**. Sir, I don't think we need to reduce the amount of spares we need.

Mr. **Murtha**. It seems to me if you manage it better, you ought to be able to reduce the number that is needed.

General **Bracken**. No, sir. I have a requirement that I have to satisfy.

SUPPLY SYSTEM EFFECTIVENESS

Mr. **Reay**. I think the point that is missing is that the performance of the system has improved. The examples that General Bracken gave about how many aircraft we had down in the earlier period, as opposed to what we have now, helps define what we are getting for the same relative expenditure.

Mr. **Murtha**. So you are flying more hours, you have more airplanes in the air, like Admiral Moore said, he has $800 million more in flying airplanes——

Admiral **Moore**. $800 million more of fully mission capable aircraft for each deployed aircraft carrier.

Mr. **Murtha**. So with the same percentage of dollar, you are managing the system much better, so you have got the airplanes up in the air?

General **Bracken**. Yes.

Mr. **Hefner**. Will the gentleman yield?

What you are saying is that for each $16 million F-16, you have $2.5 million sitting there in spare parts for each F-16?

General **Bracken**. Approximately, sir. To support its peacetime flying hours.

Mr. **Hefner**. For how long a period of time? Do you do that every year or what is the cycle?

General **Bracken**. The peacetime flying stocks that I buy every year are to replace the condemnations that occur in the system. The box is broken to the point where it is no longer repairable. For wartime stocks, the stocks that will carry us through those 30 to 60 days of war, I buy what I think he is going to use in that 30-day wartime period, and there is a lot of uncertainty in that. We do these war reserve flyouts to make sure that we are estimating that to the best of our ability, but even those kits don't stay static. If I mod the airplane, I have to change the kit. If the failure patterns change on that component, I have to change it and buy it out.

This is what we have to deal with in the long term in being able to make sure we have the right number of spares for that guy to go to war. There is the uncertainty of air base attack, if I am sitting here and I have a "golden beebee".

Mr. **Hefner**. I am not an expert on this. Could you explain this further?

General **Bracken**. The bad guy comes over in his FULCRUM or FENCER, and he happens to hit the place where I got my spares stored. That is why in a wartime role, and particularly when you are talking about wartime spares, just in time inventory won't work in that context.

Mr. Hefner. You are computerized enough to say that you don't do a lot of duplication on that 25 percent. You have kits, so you don't continue to order those at regular intervals?

Mr. Reay. That 25 percent is a snapshot. If we use spare parts we replace them. However, the 25 percent method isn't the way we compute the requirement. That is a generalization for informational purposes.

Let me expand what General Bracken said to the total DOD. The total value of weapons and equipment items in DOD is valued at $392 billion, let's use $400 billion—the total value of spare parts is $100 billion. That ratio of 25 cents to the dollar, or $100 billion to $400 billion, was true back in 1980.

Mr. Hefner. That is not the point I am getting at. What I am asking is how often do you replenish this 25 cents on the dollar?

General **Bracken.** Every year for the Air Force, every year we have $50 to $60 billion worth of demands on the system. We satisfy all of that through repair with the exception of $2 to $3 billion of POS or peacetime replacement buys for the condemnations. So most of the leverage that we get out of our spares is through the repair process.

There is a demand on the system in terms of what the cost of that item would be if I had to buy it new of $50 to $60 billion a year, and I satisfy the requirement mostly through repair, the depot maintenance budget and the rest of it, the condemnations, I have to buy it out because the part is no longer serviceable.

Mr. Hefner. Thank you.

Mr. McDade. From this side of the table the question is, is the equipment ready to run? And everybody at the table is testifying that your mission capable rates and your ability to keep them going at an efficient rate, to train the people to do the jobs they need to do so that you don't send kids into situations at risk for the first ten sorties?

General **Bracken.** Yes, sir.

Mr. McDade. That meant you were not able to train them——

General **Bracken.** We could train.

Mr. McDade. It is not up to the level that you want to get to. You said you get $800 million worth of airplanes in the air more than you used to.

Admiral **Moore.** Capable on any given day.

Mr. McDade. The figure makes me wonder, because I am interested in numbers, not figures. A brand new F-14 costs what, $70 million?

Admiral **Moore.** Closer to $40 million. We are talking 24 additional fully mission capable aircraft on a deployed aircraft carrier. The $800 million is the value of those 24 aircraft comparing where we were a few years ago and where we are today, the number of aircraft that were fully mission capable in the late 1970's versus the number today on a deployed aircraft carrier, is 24 aircraft.

Mr. McDade. So you have 24 aircraft of various types.

Admiral **Moore.** Yes, sir.

Mr. McDade. Out of how many?

Admiral **Moore.** Out of 80.

Mr. McDade. Ready to roll. In the 1970's, you had how many?

Admiral Moore. In the high 40's.

Mr. McDade. You had somewhere in the 40's on the deck that you couldn't get off the deck?

Admiral Moore. Sir we had 30 or more aircraft that couldn't perform one or more of their major missions.

Mr. McDade. When you were talking about 80 percent ready to roll, in the 1970's, how many would be on the deck not able to put up?

General Bracken. When I was at Lakenheath, 40 percent were not mission capable. We have a victory but that victory is perishable.

Mr. McDade. Does this budget sustain the kind of previous history that we have had through the 1980's, does it do the job to keep those rates where they are and not degrade them?

General Brailsford. I would answer that for peacetime operations for the Army, day-to-day operations, we will probably do it, but where we have a problem is for sustainability in our reserves.

Mr. McDade. That is ammunition and all the rest——

General Brailsford. That is our spares. I am talking about spares now. Our spares that would be required if we went to war to get 30 days—it would be true for ammunition as well.

Mr. McDade. The Army is saying that as we get this budget presented to us today, you are in trouble with spares and ammo now in this budget?

General Brailsford. Yes, sir, particularly for war reserves.

Mr. McDade. I don't know how to ask you to capsulize it, but I would like to hear you capsulate and put a number after the shortfall as you see it for the Army.

General Brailsford. Let me try to do it this way. For war reserves for our Army stock fund, our requirement for fiscal year 1980—this is net requirement—was $1.4 billion. We have funded zero dollars in fiscal year 1990 for war reserves. So our——

Mr. McDade. The budget request is zero, is that right?

General Brailsford. For war reserves, yes, sir.

Mr. McDade. What about the past inventory, does that ameliorate that problem to some extent?

General Brailsford. Our war reserve stocks started out low, but that means that a policy that we would have new systems, we would try to have 30 days for new system spares to support that, we can't meet that.

WAR RESERVE REQUIREMENTS

Mr. Reay. Let me apply some numbers to that specific question. Our total DOD-wide war reserve requirement as of the end of fiscal year 1989 is $25 billion. Our available inventory going into that period is about $12 billion. I think each of the Service people would tell you that we are not going to make very significant strides in moving the inventory toward that requirement, particularly in the Army, as General Brailsford mentioned. DOD will have no significant growth in inventory during that budget period for war reserves.

Mr. McDade. What about the Navy?

Admiral MOORE. You asked if the budget is adequate to protect the gains in readiness we are talking about. We do have one area in which we project a slippage in our readiness, and that is in our aircraft mission capable rate. We are projecting the average rate across the Navy, as opposed to single carriers, which today is 73 percent, will slip one percent a year over the next three to four years.

Mr. MCDADE. Based on the POM?

Admiral MOORE. Based on what we have in the 1990 budget and projected for the outyears. I am talking about readiness, which is not a war reserve issue. War reserve is required to sustain operation.

Mr. MCDADE. Define the categories you are talking about when you give that answer, would you?

Admiral MOORE. Yes, sir. What I am talking about is our initial spares budget that we have for aviation and ships support. Those are areas in which we were not able, in balancing the budget and in balancing the priorities, to put as much money as we would have liked. An example is our aviation spares account. Our view is that there is an acceptable level of risk. We expect a relatively minor degradation in our mission capable rates as a result of the budget, but we, with our current budget, do not forecast we are going to lose all or any significant part of the gains we made in the last eight or nine years.

General BRACKEN. As I talked earlier as to our Air Force's position, we have had problems sizing down our budget, and we have given up sustainability, not all of it. The result of that sustainability impact compared to the numbers of combat sorties we can fly for the fighter force coming out of 1989 is about 90 percent. When we finish at the end of the FYDP about 74 percent of our combat sortie capability will be executable, mostly driven by spares. We put $1 billion plus in the aggregate of spares and depot repair and stock fund and transportation as we transitioned from the Reagan to the Bush budget.

Mr. MCDADE. Everything this year is for the foreseeable future.

General BRACKEN. That is why we tried to make a balanced decision and be responsible——

Mr. MCDADE. We were talking before about the inventory on hand. In 1980, 74 percent of the spares were to be used within two years according to documentation. When we got up to 1988, that figure had decreased to 62 percent, and long lead had gone up to 38. I was wondering what that means.

General BRACKEN. If you look at on-hand investment spares stock, the ratio has stayed the same, 75 percent of the investment spares is applicable or active inventory, and about 25 percent is in long supply category for spares, and when you aggregate other things into that account, for example, expendable spares, when you look—we have had some variances that take us outside that ratio. If you look at the preponderance of our spares that are in the investment account, which is about 75 percent of the total number that you are looking at in the DD–1000 report, which is where you are getting those numbers from, the preponderance is in investment spares, and I think that is what your Committee focuses on.

Mr. McDade. Are you saying it doesn't mean anything to see a difference between the two years and up to the long supply items because there is growth—are you saying that doesn't mean anything?

General Bracken. I didn't say that. I am saying——

Mr. McDade. This Committee tried to get the spares problem under control a long time ago, and every member of the Committee has been diligent in trying to be sure we don't repeat the problem that we have had, recognizing the overall problem.

But when you see something that says 38 percent, the figure has gone up a lot. It is a long supply—I don't know what the significance is, and I am asking you.

INVESTMENT AND REPAIRABLE SPARES

General Bracken. If I peel that onion back one layer and look at what is in that long supply, and the biggest driver of that is investment spares, that ratio is 75–25, which is basically what it was in the 1980 timeframe.

Mr. McDade. You are making a distinction between those, you are saying it is an investment spare. Give me an example——

General Bracken. An investment spare is something that I can repair, a black box, a landing gear on an airplane.

Mr. McDade. It is theoretically about everything on the airplane, isn't it?

General Bracken. No.

Mr. McDade. What can you not repair?

General Bracken. An F–15 canopy costs $25,000. That is a very complex canopy. The tires on a F–15E model, you can't recap them. They are a thousand bucks a crack on those things. You can't repair them. That is a throw-away spare, throw-away in the sense there is no repair on that particular item.

Now, the long supply—just because it is in long supply doesn't mean it is bad. It means that sometime within that long supply timeframe I am going to need it.

Mr. McDade. Nobody is saying it is bad. What we are saying, sitting around the table, is we have a terrible financial crunch, and if we get out of balance—and that was a key word I have heard everybody talking about, and you start getting out there into long items, that is an area we can perhaps begin to do some additional balancing. That is what it comes down to.

General Bracken. One of the reasons that number has grown in the other areas, I think, and we are doing a lot of analysis on that long supply thing, is the force structure changes, the drawdown, the significant drawdown of airplanes. F–4, as an example, when we were supporting 700 or 800 airplanes in the active inventory, the spares required were much higher, but now the requirements are coming down. The budget you have presented reflects that the only F–4's we will have left are the Wild Weasels that go out and kill SAM sites and are the reconnaissance airplanes.

So those spares we bought, when we bought the requirement, it was a dollar requirement. When that force structure changes and goes down because of budgetary considerations, the spares on hand roll over into long supply. We still have an FMS application for those.

ADEQUACY OF SPARES BUDGET REQUESTS

Mr. **MURTHA**. We recognize that, and that is what we are trying to get to. You can't be absolved of responsibility because you are programming money out of depot maintenance into the supply system, and we are trying to get a handle on it. What this Committee wants to know is where we are, because if we start—you know, you can give us all kinds of scenarios in order to keep money in the system, but in the meantime if you then reprogram depot maintenance, you run into the problem of being able to actually do the work. You obviously have to make the judgment.

But our problem is we have to make the final judgment about what is available at every level, and if we don't have the information, we run into the problem of maybe making a mistake.

Now, we see some long supply items here that you may want to shift around, but we may have to shift around if we run into overall budget problems. This is our problem.

Mr. **McDADE**. We were talking about the F-4, what we are all talking about, the budget request for the F-4 last year for the total requirement was $43.1 million. The same item this year. If the force structure has changed, we ought to be able to sit around this table——

General **BRACKEN**. Sir, a lot of those F-4's are going to be around for a while.

Mr. **McDADE**. You are the one telling me we are getting into more modern aircraft.

General **BRACKEN**. What I am saying, that is the reason some of those assets rolled from active to long supply.

Mr. **McDADE**. But this is not saving one dollar in the spares, which confuses me.

General **BRACKEN**. What I am trying to say, sir, is I may have some long supply items in there associated with the F-4, but those stocks won't work on the F-15 or F-16, so, we can't cut the spares budget based on long supply assets for the F-4.

Mr. **McDADE**. If we are going to get into balance and have a smaller force structure, and laying aside some, why does the budget reflect the same amount in a tough budget year for a plane that you testified was being slowly pulled out?

General **BRACKEN**. Because the ones left are going to be there, sir.

Mr. **McDADE**. They are going to be there, but when you get to the balance question, which is the problem every one of us faces, the line items, we are going to have to get a lot of guidance about where we are going to get the money to buy the new stuff, to modernize and not have——

Mr. **MURTHA**. What Mr. McDade is saying, if you are not frank with us and if you don't give us the information we need, we might make some serious mistakes in the end on this whole distribution of money. We may put some money in here and take it out of another area where it is needed or it is more important.

You have to tell us where you have some leeway and that is what we are trying to figure out. This is going to be a tough year. We are going to have a very difficult time meeting this funding level. You have seen the figures in the paper. We have been saying it ever since November, that we are going to have a substantial shortfall in the amount of money that is available to keep the forces that we have available today and keep up readiness. We are not going to be able to continue to modernize a ready force with the number of troops we have when you have a lot less money.

So we are trying to figure out where that money can be cut. You are moving around from depot maintenance up into supply—we've got to know whether there is some extra money we can adjust. That is what we are talking about. Everybody wants to protect their own program, but we are looking for some advice about where we can adjust some levels.

Mr. REAY. Could I comment on that? I think we are certainly trying to be frank with you, and I think we are being frank with you. The problem is, for example, that there is only a very tenuous connection between the subject of long supply and the subject of the current budget. When we develop the budget, every single item is computed.

Mr. MURTHA. Let's put this in terms we both understand. What we want to know, can we maintain the forces we have today at the level of readiness we are talking about with the amount you requested in the budget without having to reprogram out of depot maintenance or any place else? In other words, is this request an adequate request and with the right distribution?

Mr. REAY. I think we are saying it is adequate to support the peace-time program.

Mr. MURTHA. You have taken money out of war reserves, that is where you have taken your money.

Mr. REAY. That is where the shortfall has been taken.

DEPOT MAINTENANCE

Mr. MURTHA. What about depot maintenance? Do you have too much money? Is that a pool we can take money out of?

General BRACKEN. No, sir.

Mr. MURTHA. How much did they reprogram last year from depot maintenance?

General BRACKEN. It was $36 million, sir.

In the aggregate, as I mentioned in my opening remarks, we moved money around in the aggregate. In 1985, we——

Mr. McDADE. It is $400 million. Let us shorten the conversation.

General BRACKEN. At the same time that was going on, Congress took a billion and a half.

Mr. McDADE. There was a summit agreement reached, and you were supposed to live under that just as we were, right?

General BRACKEN. Yes, sir.

Mr. McDADE. No less requirements to come in and buy, to modernize, we had the same request to come in, buy airplanes, in fact we increased what were uneconomic buys in this Committee because of the outrageous cost of buying, as the plans were submitted from across the river. We had to do that.

Now when you tell me you move $400 million around, you bet you did, and you can say you were hit with a budget agreement. So were we. And across the river, General. What we are trying to do here is to make sure we don't get into this tough period again. We are all in the same situation together, and we have to figure out how we keep this kind of balance. That was the key word that I heard expressed, and as the Chairman has said, you have absolutely scrubbed your figure so hard because there is going to be pain in this budget, decisions all of you sitting at that table and sitting around this table are not going to be happy with. We have hard decisions to make, and we don't want to repeat those things.

You know, you fellows come over with your budget, and you are doing a great job with a tremendous inventory, scenarios no man can live with. To be able to do what you have to do and sit there and say honestly I can get my people in the air or get the tanks out on the line and get the soldiers out. All kinds of things can come along and ruin years of planning. One terrorist could ruin five years of planning, But we have decided we are cutting back, we are going to bear more risk as a nation.

We want your help to do this. We don't want to be involved in any kind of lack of credibility, and lack of belief in the figures you give us. We want to level with each other.

General BRACKEN. We are leveling with you.

Mr. McDADE. I don't mean to say you are not, General. The thing we need to do is achieve the best balance we can to get the best——

Mr. REAY. What we have to realize is that we are doing the kind of scrubbing you described a moment ago. I can go right down the figures. Our safety level requirement in fiscal year 1988, DOD-wide, was $9 billion. It is now down to $8.5 billion. Our procurement lead time requirement was $24.9 billion, it is down to $23.2 billion. Repair cycle requirement was $5.2 billion, it is down to $4.5 billion. Other levels went from $16.4 to $14.9 billion.

These are actual comparisons between the fiscal year 1988 budget that came over here and the fiscal year 1990 budget you are looking at right now.

Mr. McDADE. Send me a list.

ADEQUACY OF SPARES TO SUPPORT TOTAL FORCES

Mr. MURTHA. Let's go back now. Here are the headlines on this article that say GAO says there is a $100 billion gap, I assume that is a five-year gap, in the amount of monies available. We know there is a tremendous shortage in the amount of money that is needed. As a matter of fact, OMB and CBO have a difference of $3.8 billion in just how they estimate the amount of money and outlays which are necessary, so we got to come up with that difference, $3.8 billion, in just one item, and that item is defense-wide, and it is a discrepancy between how they estimate the outlays. That puts us in a very difficult position.

Now, what I am asking is defense-wide can we support the forces we have in the field with the amount of money we have available in the spare parts situation and depot maintenance? Is your area of responsibility going to deteriorate further with the amount of money that you have, is it going to stay level, or are you going to be in better shape with the request with the amount of forces we have in the field today?

Mr. **Reay**. Why don't we go down the line and answer that question.

General **Brailsford**. I am not sure I am the guy to answer that question.

Mr. **Reay**. Let's give him our best estimate at this point.

General **Brailsford**. I guess if I look at what I understand is the central supply program, there is really a big shortfall in that, and it is going to be difficult—

Mr. **Murtha**. I have been saying this to the Secretary of Defense and the Chiefs of Staff, we are not going to be able to fund the total forces at the level they have with the requests that you have made. That may be over-simplifying it, but basically that is what you are saying, General, if you start to slip, readiness will have to slip because you don't have the money you need available. That is what you are saying. Is that accurate?

General **Brailsford**. I think that is accurate.

Mr. **Murtha**. Is there anyone who disagrees?

Admiral **Moore**. Yes, sir, I wouldn't say that for the Navy. We believe that the request that we have on the table will sustain the readiness that we have today. We have made a lot of effort to ensure that the operation and maintenance resources, which we make available to the fleet, will be able to keep the bins full where they are today. We believe that our readiness will stay where it is.

Mr. **Murtha**. With the number of people you have out in the field, with the missions that you have. So the Army may need more money but the Navy is in good shape.

Admiral **Moore**. We believe we can sustain readiness. That was our strategy in the budget.

Mr. **Murtha**. You won't have to cut into war reserves, and you also will have the spare parts that you need.

Admiral **Moore**. As I stated earlier, we do project a decline in our aircraft mission capable rate of one percent per year over the next three to four years. This decline is only partially spare parts related.

Mr. **Murtha**. But the point is with the money you requested, the aircraft mission capability rates are going to decline.

Admiral **Moore**. Yes, sir.

General **Bracken**. I think we have good balance in our budget that is placed before you all through the logistics areas, whether it is the O&M side of the house, the maintenance, the transportation, the spares, the investment accounts, we achieved the balance. We can protect the readiness levels we have right now, and we have made some modest attempts to recover some of the sustainability. We are not going to get all the sustainability we would like to have.

Mr. **Murtha**. You are talking war reserves.

General **Bracken**. Yes, sir. But we have to keep that in balance with the overall affordability.

Mr. **Murtha**. The forces we have in the field today—we haven't started slipping yet.

Mr. **Reay**. That is right.

Mr. MURTHA. You talk about five years, we are projecting five years now, that is what I am talking about. In other words, we maintain this rate for five years, the Navy and the Air Force are not going to slip, the Army is going to slip, and we may have to adjust the Army budget. All right.

Let me put in the record correspondence between myself and General Russ on this spares situation, because I think it is important the other Members recognize it.

[The information follows:]

RECEIVED
APR 10 1989
HON. JOHN P. MURTHA

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS TACTICAL AIR COMMAND
LANGLEY AIR FORCE BASE VA 23665-5001

OFFICE OF THE COMMANDER

7 April 1989

Honorable John P. Murtha
House of Representatives
Washington DC 20515-3812

Dear Mr Chairman,

I appreciate the opportunity to comment on the recent article in Military Forum and believe the article was accurate in its portrayal of our ongoing initiatives in the spares arena. However, I think the article missed the mark in describing both the situation and the rationale that drove us to those initiatives. The subject of proper spares levels has been one with which I've personally wrestled a number of times, principally because "what's right" is both tough to define and tough to attain.

To respond in general to the allegations of the article, and specifically to your questions, let me say that I generally agree with Jack Welch's denial that we've significantly overfunded our spares. It's true that as we've recovered from the "hollow forces" days of the late '70s, we've placed strong emphasis on our spares posture. At the same time, however, cuts made over the past two years are making it tough to sustain the improvements in TAC's capability we discussed during your visit.

As you know, we buy two sets of spares. The first set we call peacetime operating stock (POS). These spares allow us to fly a specific number of flights per month during peacetime. These spares would also sustain the same sortie rate in war. However, in order to support the increased number of sorties flown per month in wartime, we buy a second set of spares (WRSK/BLSS). In our spares budget we typically fund the POS requirement at 100%, because it is the baseline which allows us to train our pilots and keep our aircraft ready to deploy and fight when needed. If we miscalculate our peacetime requirement, or if our break rate is higher than forecast, we have two alternatives -- we can either cannibalize other aircraft for the needed parts, or use wartime spares. In practice, we do some of both.

In response to your specific questions, TAC has always relied to some degree on our war readiness spares to support peacetime flying operations. Our rationale is straightforward. We need mission-ready aircraft to train our pilots and to deploy when needed to the area of conflict. To let an aircraft sit grounded when serviceable parts are available denies us the ability to do either. To illustrate, I looked at data from one of our active

A-10 wings. Over the past six months, 81 percent of the requests for parts that we were able to immediately satisfy were filled from peacetime stocks, and 19 percent from wartime reserves. In my view, this posture reflects little, if any excess.

As for your question on inflated spares requirements, I must acknowledge that there's always chance for error when judgment is a principal factor in the equation. Until recently, we've operated somewhat in that mode, but in my view any resulting overstatement was neither gross in scope nor intentional in purpose. As the article stated, we've recently developed improved analytical tools which we've applied and tested in our series of CORONET WARRIOR exercises, the third of which begins in mid-April. Based on what we learned, we've refined our TAC requirements, cutting unneeded spares and adding a few we had overlooked. The result is a more effective and less costly kit. Using our most recent F-16 exercise as an example, we reduced the cost of a 30-day, squadron-size kit by about $2.5M, or nearly thirteen percent. This reduction, along with those resulting from our first exercise, was incorporated into our budget requests for FY89 and later. I fully expect similar results from our upcoming exercise, and I'm convinced that TAC's wartime spares requirements are as valid as we know how to make them.

Is the "system" working? I think so, since what we've learned in our CORONET WARRIOR exercises has been applied to our annual spares kit updates. One difficulty in bringing all of this to fruition, as I've indicated, is the budget support needed to make it all happen. While our amended FY90-94 budget represents our best attempt at a balance between our investment and operating accounts, it does not fully fund our wartime spares requirement. Following two years of essentially zero funding for WRSK/BLSS, this shortfall will limit a number of squadrons to only peacetime levels of support. This condition will persist until program funding improves.

Mr Chairman, we appreciate your personal interest in TAC's readiness. Your subcommittee has been at the forefront of the improved capabilities we've achieved in the '80s, and I know you'll be principal players in the decisions needed to sustain those improvements. I hope my comments prove useful for you.

Sincerely,

ROBERT D. RUSS
General, USAF
Commander

Mr. **Murtha**. Mr. Hefner.

ADJUSTING TO FUNDING CONSTRAINTS

Mr. **Hefner**. The arguments we are making here are academic. It doesn't matter, this is what we are going to have. I served on the Budget Committee for six years, and what we come down to here is an agreement that we have got that there is going to be no more revenues, and under Gramm-Rudman-Hollings, if we go to sequestration you are in deeper trouble than you are under these agreements we have made.

It seems to me what we have got is a situation where we just have to set priorities. We have to take the real heartburn stuff, and there is just going to be some suffering. We have said in this budget, trying to find extra money, and we are down to the point where we can't find any big bucks unless we go to the people. That is the only place we can get it.

So this is a good argument and a good discussion to have, but it really doesn't accomplish much because we have got what we have got, we are going to have to take the Presbyterian attitude, and what is going to happen is going to happen, unless someone breaks the law and says we are going to have a few more billion dollars in revenue.

I have a real problem with my subcommittee, Military Construction, we have a backlog of family housing and this sort of thing, we are so far behind we can't even see daylight. We are going to have to set priorities. And as far as the Army goes, maybe we can—there may be some ways we can make some changes, but I know over the years, one of our big focuses here has been the situation a few years ago where spare parts were a scandal. When we were out in Texas, we talked about cannibalizing the B-1. Are the parts interchangeable? And this sort of thing.

So these are good arguments and good discussions, but the fact remains we are going to do the best that we can here to make our dollars go as far as we can, and hopefully that you gentlemen are going to set some real tough priorities to keep us on the road. I don't have any questions, Mr. Chairman.

Mr. **Reay**. Sir, could I comment on that? We are in 100 percent agreement with you. The logistics community within the Department of Defense is having to adjust to funding realities. We are not so naive as to think we are going to be living fat, dumb and happy for the rest of our natural lives. We know these declines are coming.

The problem that we have in addressing some of these questions is that the logistics community is largely driven by other things, we buy so many weapon systems, we say we are going to have so many divisions, so many ships at sea. We cannot sit here unilaterally and say it is all right to cut logistics because we are largely driven by these other factors.

The other side of that is that the logistics community hasn't always been in as good a condition as it is today. That situation may change. The problem is that we are going to have to tighten our belts. We are doing that already. We mentioned the war reserve problem. We have done some significant belt tightening basically by not buying some of the war reserve requirement.

Mr. McDade. Would you yield? We sit on this side of the table and look at things like the GAO report. I agree with what you say about the fact your job is to keep the bins filled, and keep your people ready to fly and move and everything else.

What we see is an increasing effort toward procurement in the outyears. It is going to change the mix in your bins and do things that are going to cause enormous crunches to us. So, you know, I recognize what you are saying, that your job as a logistician is to try to keep that enormously complex problem under control. You are doing it, and you are doing it very well. You don't buy the systems. We sit here and keep hearing about new systems coming in with enormous price tags on them, going out to new technologies, et cetera, within this existing framework. As we begin to look at it, I guess that is why we start asking you so many hard questions, because we start every day wondering where the money is going to come from to do both, to modernize, and keep the bins filled, to keep the military from being a hollow military as it was. This becomes a matter of great concern.

Undoubtedly to some extent when we are hitting you with the hard questions and expecting you to answer regarding the total budget problem, you can't do it. Your problem is to keep the bins full. We look at what the rest of the five-year program provides and what is going to happen with modernization and all the rest of it.

Mr. Reay. Sir, we are looking at that also, and we shouldn't leave you with the opinion that might result from my last comment that we are like a cork on the ocean and not reacting. We are reacting, recognizing that we are not going to be able to solve all our problems with more dollars in the logistics community. I referenced some documents earlier, for example the Logistics 2010 documentation, which reviews how we can deal with reduced budgets by more management efficiency, by use of technology, by doing our jobs better. It is the same old thing, to do more with less. We think we need to do that.

Mr. McDade. I read the testimony, and I read one of the statements that unit costs are up 37 percent. General, I think it was your statement that the unit cost of a spare part is up 37 percent since 1980.

General Bracken. That is the way the inventory is displayed. We size it by cost.

Mr. McDade. It makes me wonder, everything we have heard about is costing so much more. There isn't a system on the books that doesn't cost enormously much more than what the original items cost, whether it was a F-4, whatever it was.

General Bracken. The logistics support that we, and I would agree with Mr. Reay's last comment, the logistics support we are providing for the new systems is within balance of those programs. If we alter those force structure or those modernization programs——

RELATIONSHIP OF SPARES TO INVESTMENT ITEMS

Mr. **McDade**. General, if you get a B–2 and you are going to put 25 percent in for spare parts, as in your conversation with Mr. Hefner, how much is that going to cost you?

General **Bracken**. It is going to cost us some money, but we have captured those costs within our budget.

Mr. **Hefner**. Will the gentleman yield?

If our numbers are correct on the B–1, then that is not a $20 billion program, it is a $25 billion program. Is that right? Is that the way the numbers work out? You got a $25 billion program, and somebody alluded to the Sergeant York, I don't know how many spare parts we still have for that equipment, could you tell us?

General **Brailsford**. There is about $112 million left of repair parts.

Mr. **Hefner**. What do you do with those parts?

General **Brailsford**. Some of it will be disposed of, some we are looking for other requirements, that we can use for other parts for different requirements.

Mr. **Hefner**. So we don't know what the B–2 is going to cost, but if it costs $40 billion, does that mean that we have got a $10 billion increase, that is a $50 billion program? Is that what we are saying?

Mr. **Reay**. That might be a good generalization——

Mr. **Hefner**. No, that is what you said.

Mr. **Reay**. Sir, I would like to explain in more detail.

Mr. **Hefner**. You said you had $400 million and $100 million, so four——

Mr. **Reay**. Sir, that is a generalization. We don't compute the requirement that way. The requirement is computed item by item. That 25 percent relationship was quoted just to show that we haven't let our spares grow way out of proportion to the end items. I think it is obvious to everyone when you start talking about the B–1 or B–2, we will have a high up-front cost of spare parts for those weapon systems as we develop initial stockage requirements. Traditionally, on every single weapon system we have ever bought, ultimately that cost curve will come down. As you get maturity of the item, you get better technology, the meantime-between-failure increases dramatically, that always happens.

Mr. **Hefner**. How is it done on the M–1 tank?

General **Brailsford**. Essentially you look at the requirements, the demands for these items.

Mr. **Hefner**. I am asking, what has been the history of the M–1 tank? It has been around long enough so we should have some kind of history. Has that been close to 25 percent?

General **Brailsford**. I don't know. I don't know the answer to that.

Mr. **Hefner**. How has it been on the F–16 and F–15? As we say around here, we have a legislative history. You have a performance history on these. Over the lifetime, how has the curve been on the F–16?

General **Bracken**. I am not sure I understand your question.

Mr. **Hefner**. You said 25 percent—am I right, Mr. McDade?

Mr. **McDade**. That is what I thought they said.

Mr. **Hefner**. You said you got $400 million worth of hardware. I am not talking about people, I am talking F-16's, F-18's, M-1 tanks, Bradley fighting vehicles, the whole smear. You said you need to have a 25 percent spare account. That is the way I understand it. That is what you said.

Mr. **Reay**. Yes, sir, but you have to realize that number is the buildup of stocks over a period of years against the total inventory. You cannot use that number as a basis for any kind of budget development.

Mr. **Hefner**. I asked you earlier what period of time you were counting, if this was for a year, two years, or what have you. I am not trying to be the devil's advocate, I am just trying to find out if we have a machine here that cost $400 million, is it another fourth of that to keep this machine running? Just like my car, how much does it cost me over one or two years to keep it going and if you go to a level Mr. Murtha talked about we didn't have in the 1970's, what does it cost?

Mr. **Reay**. What we ought to do is try to answer your question on the basis of not whether it is 25 percent, or whatever, because on a given weapon system or a given item, that number is meaningless. We compute the requirement item by item. For some items the cost might be 50 percent.

Mr. **Hefner**. I asked you on several systems. I said F-16's——

General **Bracken**. I don't have the exact numbers.

Mr. **Hefner**. Where did you all come up with the numbers?

General **Bracken**. We look at the value of the aircraft inventory we have today, active today, and the value of the spares inventory we have to support that, and that is where we come up with the ratio.

Mr. **Hefner**. Twenty-five percent.

General **Bracken**. Yes, sir.

With respect to the B-2, we have captured in the B-2 program costs that are sitting here today, those elements of spares requirements necessary to support that weapon system. And for 1990——

Mr. **McDade**. What do you mean you have captured it?

General **Bracken**. They are included in the program costs.

Mr. **McDade**. Maybe this is what you mean I am looking at the budget document here in the budget revision, and it shows a total figure of $32 billion including dollars for the B-2 aircraft.

General **Bracken**. Yes, sir. We will have very few airplanes.

Mr. **McDade**. Beneath that is inventory augmentation, and it includes new production, F-16, C-17 and B-2. You know, there is a lot of question about whether or not we are going to stretch it, whether or not we are going to buy it, affordability problems about the B-2, and here it is showing up in the spares.

General **Bracken**. The numbers we have for inventory augmentation, which are the throw-away spares we have to have in stock as we bed down the weapon system, reflect the production program that is in President Bush's budget.

Mr. **McDade**. The two-year stretch-out?

General **Bracken**. Yes, sir.

Mr. **McDade**. What about the war reserve?

General **Bracken**. The same thing. We don't need to buy too much war reserves the first year because the airplane doesn't——

Mr. McDade. There is a controversy, I mean this is not your policy decision, and that is where I realize——

General Bracken. We have to buy those spares lead time away, and that is what the budget reflects.

Mr. McDade. What is in the war reserve for the B–2?

General Bracken. Those kits that will allow it to sustain in a non-supply position—let me use an example, the F–15. We construct that kit that supports an F–15 squadron, and the assumption is it will operate from an air base in Norway, or wherever, for 30 days out of that kit without any resupply.

Mr. McDade. General, I am talking about the B–2, I am using the budget justification illustratively, an item we are struggling with. The Secretary of Defense says he can't get a handle on the costs. There hasn't been a decision to really go, and I guess what we would have to do if there was a decision to stretch, should we stretch out these war reserves and inventory augmentation?

General Bracken. No, sir. We would have to start buying lead time away to bed down that weapon system. We have already stretched it in the budget, sir. That stretch has already occurred. Those requests are to support that stretch.

Mr. McDade. So you are saying this is consistent with the Secretary's decision to stretch out by two years?

General Bracken. Yes, sir.

Mr. McDade. They are war reserves that would be needed, in your judgment, at one point if the plane is in a combat situation and ready to go. The other is what kind of inventory augmentation are we talking about?

General Bracken. Inventory augmentation is in the stock fund for throw-away spares. Those are the spares that are consumed and we cannot repair. We need this kind of support to support that weapon system. When I make that first bed-down of that airplane at its first operating location, I have to have some consumable stocks in hand to support the flying operation because of those demands.

Mr. McDade. We know all that. There are people who are talking about reprogramming money up here from the Air Force's shop out of production tomorrow, development money, et cetera. There is a big problem about what to do. So I hope we know this——

General Bracken. That is what you pay us to do, sir.

Mr. McDade. To fill the bin?

General Bracken. To make sure it is in balance.

Mr. Reay. This is the whole point of our inventory process.

Mr. McDade. You make a hell of a good fighter pilot.

General Bracken. The things we do we have to do programmatically, sir.

Mr. Reay. This is the whole point of our computation process. We don't say let's buy 25 percent because that sounds like a good number. Every single item, whether it is the B–2 or M–1 or A–6, the spares and repair parts to support that are computed item by item, and the budget we send over here to the very best of our knowledge is very consistent with the current known program. If that program is scaled back, the spares and repair parts budget is scaled back.

Mr. **Murtha**. What you have decided to do is because of the risk that you see now, you are reducing sustainability, and that is exactly what you are doing. So you can live with the training and so forth, but sustainability is going to be affected. That is what you are doing.

Mr. **Reay**. That is correct.

Mr. **Murtha**. Mr. Miller.

CONTRACTING PROCESS FOR SPARE PARTS

Mr. **Miller**. Thank you, Mr. Chairman.

Do you enter into a contract for spare parts with the supplier at the time that the contract is made for a new type plane, or do you separately order from that same contractor those spare parts that will be needed? Do you get involved in the first contract where if they make 750 of these parts and you feel that you need 250, do you add that on in the original contract, or do you contract separately?

Mr. **Reay**. No, sir. That judgment would be made on an individual weapon system basis. Once the decision is made that, yes, we can use the production contract, there is a program called Spares Acquisition Integrated with Production—SAIP. That program specifically does what you are talking about. It identifies the spares needs right along side the installed item needs, and the contract has provisions for us to go ahead and buy the spares, given the fact we are getting a price break and we can get delivery in the proper fashion.

So we look at every single weapon system that we acquire, we look at the contracting approach and so forth to see if that kind of an approach can be done. So, yes, it is looked at in every single step.

On the B-2, I am not sure whether we are using the SAIP or not. I think we did on the B-1. We did certainly on the F-15.

Mr. **Miller**. We should have history from the B-1 that would help us some on the B-2 as to what parts may be needed.

General **Bracken**. Yes, sir. And when we do that—as I said, the only risk in the B-2 is there will be components when we have no failure experience on, so we have to make a very reasoned decision based on the best judgment of some very, very good people that are part of this equation to determine just how much we would provide for that aircraft. We will buy it with production. And this Committee has encouraged that on previous weapon systems, and we will continue to do that in the future.

Mr. **Miller**. We know that the history on the B-1 won't provide all the answers for the B-2 because they are different aircraft. But some history on the B-1 should be helpful.

Now, entering into the contract, after that history has developed, do you have language in that contract that will allow you to tag on and pick up the parts that you need at a savings cost.

General **Bracken**. Then your base is still active, and that is the point I think you are making. Yes, we will exploit that, and we will buy—and when we buy that way, sir, I must tell you, as it did happen in the B-1, you buy beyond the active inventory period, and so initially those assets will stratify into a long supply category. They will stratify into that long supply. And as the weapon system builds up to the number of airplanes that are going to be inventoried, they will roll into the active inventory.

That is a good deal for the taxpayer because we get those parts cheaper, because we can go to that vendor and buy it along with the production assets and exploit our provisioning process.

Mr. **Reay**. And configuration control is much better.

Mr. **Miller**. The contingency retention stock has been mentioned, and you were retaining stock in order to provide for military sales. Do we have a lot of dollars involved in that particular stock?

Mr. **Reay**. I believe it is currently $10 billion.

Mr. **Miller**. Where would that stock be located?

Mr. **Reay**. Normally it would be stored in one of our 30 distribution depots around the continental United States.

Mr. **Miller**. Do you have stored any appreciable amount of this stock in foreign countries?

Mr. **Reay**. No, sir, very little. Most of that kind of stock, if it becomes excess at, say, a base overseas, would be returned back to a CONUS distribution center.

COMMON USE SPARES

Mr. **Miller**. Admiral Moore, you had mentioned in your statement that some of the stock is obtained from GSA. Could you tell us a little more about that? They are purchasing maybe in volume and you are again tagging on and picking up from them?

Admiral **Moore**. The Navy uses 2.5 million items. We manage ourselves about 700,000 of those. The other 1.8 million we obtain either from the Defense Logistics Agency or General Services Administration for the most part. These are common use items, not unique to the Navy, and do not require any special management, like our repairable items would. And so we are basically tapping into these large agencies which are able to manage these commodity oriented items as well as or perhaps even better than we could.

Mr. **Miller**. Speaking of stocks, do you have anything at all to do with the fuel? We have a separate group that handles fuel, but do you work with them in order to evaluate the volume of fuel that would be needed and where it should be located?

Admiral **Moore**. My command also is involved. We are in charge of the Navy's management of fuel. We have a number of tank farms around the country which have fuel for use in refueling ships. The determination of how much is made centrally in the Department of Defense by the Defense Fuel Supply Center.

Mr. **Miller**. Are we using railroad tank cars to store that fuel? Is that what you are saying?

Admiral **Moore**. The Navy does not. By tank farms I mean tanks that we have in the ground.

Mr. **Miller**. Not on the rails?

Admiral **Moore**. Not on the rails, no, sir.

DIGITAL DATA STORAGE

Mr. **Miller**. As I read through one of the statements, it stated that we would not be able to handle the parts without digital data storage. The thought came, what if that is destroyed? If we had an international problem and that is it, we can't just say "My, oh, my, here are all these parts, but we don't know how many or where they are located." What backup do we have?

Admiral **Moore**. That is a good question. We have an elaborate data processing security system to make sure that we can recover from that, including contingency plans to move the processing from one location to another. The Navy today has a communications network around the country which enables us to move data from one place to another to safeguard it and also to back it up.

Digital data, like digital technical drawings or manufacturing information or technical data packages, is something that we are working on today and do not yet have in place for the most part. When we bring it into place, one of the considerations will be security and backup and safe guarding to ensure that we don't have a single location for that kind of data.

We are also at risk in that respect, though, even in a manual environment. In fact there is probably more risk in a manual environment, where we have massive amounts of technical data stored in hard copy paper form. This is very hard to duplicate and put somewhere else. It is going to be easier in a sense when we get into digital technology because we can replicate files and put them elsewhere.

DIRECT DELIVERY CONTRACTS

Mr. **Miller**. In another area, I read too about the direct delivery type contracts which you make. Will you give us a little background on direct delivery? The question in my mind is, are the parts manufactured? Are they stored then with the supplier, in their buildings, and it would be direct delivery from them?

Admiral **Moore**. Yes, sir. We are experimenting with direct delivery. We have used it mostly for bulky commodities like toilet paper, and copy machine paper. These types of commodities take a lot of warehouse space and cost a lot of money to move around in our warehouses. The commercial sector has a significant demand outside the Navy and we can tap into their supply by asking them to deliver to major shore activities and ships. We ensure that our customer gets what he needs when he needs it and doesn't have to interface with the supplier. This is a variant of the just-in-time inventory concept, although that may be a loose use of the term.

We have not tried it with spare parts themselves. My perception is that just-in-time delivery of spare parts is a different economic situation. The issue is who pays the carrying cost of that inventory? I believe that in the bulk commodities, it is possible for that carrying cost not to get passed back to the Navy. In specialized very low-volume things, like spare parts, I think it is going to be a lot more difficult. We have not yet tracked that, although that is one of Dr. Costello's initiatives Mr. Reay mentioned earlier, which is to look at just-in-time kind of approaches to the hundred or so top items at each of our inventory control points. That will be an ongoing effort.

Mr. **Reay**. Sir, if I might add, I think the Defense Logistics Agency might have moved into this area a little more than the

Services simply because of the kinds of items they manage, for example, photographic film, batteries, medical supplies and some other items that are more commercial type items. For those items we have major programs for direct delivery from contractors and long-term contracting arrangements.

OVERPRICING OF SPARES

Mr. **MILLER**. General Brailsford, you had mentioned about voluntary refunds of suspected over-pricing of spare parts, and in 1988 some $900,000 had been returned. Over-pricing is a big problem. You people know better than I. In the last four to five years we have had a lot of publicity. With respect to those items that were over-priced, there seemed to be some statements made here that only a few were sold at the high price, and we are talking about the wrenches and the hammers and all of that type of thing.

But the system works on numbers that correspond to the type of parts. We have talked about it here, a picture book, so to speak, that could be used by those in the logistical process. Something that gives some picture, some information as to what that part looks like. Hopefully, the person who is paying the bill would have an idea whether they are paying ten times or 500 times more than what they should for an item.

Are you people working on some type of project that will help this?

General **BRAILSFORD**. Yes, sir. In each of the commodity commands, and particularly in my command specifically, it comes under the competition advocate. We have a program where anyone who is involved in the process, if during that process they suspect one of the prices is out of line, they send that in to this office, and we then investigate to look at it, and we have had some success in detecting where it might be out of line. So that has been one aspect of the program that I think—I think that is what you are talking about.

The other one is, of course, we have a policy where we encourage the contractors who find this for voluntary refunds, and that also has been met with some success.

Mr. **MILLER**. But you have to rely on someone who thinks an item is over-priced, and they do not know exactly the description of that item. Isn't it mainly numbers that they are using, a part number?

Admiral **MOORE**. In the Navy, we have a publication called the Afloat Shopping Guide, which we provide to all the ships. We can't picture all 2.5 million items of interest, but we picture a lot of them.

We have a program similar to the one General Brailsford mentioned with regard to individuals in the Navy who think they have an over-priced item. Individuals can call this to someone's attention and get action. We call it our "pricing hotline." Over the last four or five years, we have gotten about 40,000 inquiries into the pricing hotline. Sailors on ships and/or civilians ashore, wherever they are, who see an item that doesn't pass their common sense test, this can't be worth what the Navy says it is worth, can call it to our attention. In about 20 percent of those cases, we find the need to take some action, either with the supplier or with the price at which it is carried in the catalog. Sometimes it is just a clerical error. In any event action is taken to straighten out the system.

I think it is one of our biggest success stories, because we have gotten it down to the level where it means something to the sailor on the ship.

Our overall program is called "Buy Our Spares Smart," or the BOSS program. BOSS has resulted in a net cost avoidance of about $1.3 billion over the last five or six years. This includes all the aspects of the program: Competition, breakout of parts from the original parts manufacturer and the pricing hotline. We have the capability to do independent cost analysis. We have received about seven million dollars worth of contractor refunds over that period of time.

We think our program is successful, and it is one of the ways we try to reduce the overall cost of the inventory.

General **Brailsford**. In addition to that, for items that we have previously procured, then when we go out and get ready to put those on contract, in the process of doing that, we do a pricing analysis, do a comparison to see whether that is now still a realistic price, where you have had experience, in addition to taking a look at something, you say this is what it looks like, they run those again to see if it makes sense, to see that you are paying a reasonable price.

And for those we have not done before, we have our engineered estimates on those to make sure it looks reasonable. And if there is a variance in the price that we estimate that it costs, and I think it is 25 percent, if there is a 25 percent variance, then we have to take further actions. It is a set procedure we go through to do that.

Mr. **Reay**. If I might add, this is one of the areas where I think technology is going to help us. Admiral Moore talked a few minutes ago about digital technology and so forth. One of the things that we are trying to do is give the person who is ordering a part or the person who is the inventory manager of the part an inventory description and updated item technical documentation.

We have several programs ongoing now where we are going to use computers on line with the central catalog up at Battle Creek, to give managers updated item descriptions. Another program is to give copies of the entire Federal catalog which ultimately could include drawings and pictures on optical discs that are cheap, and we can distribute thousands of copies of this around to the various users.

Part of the problem that we have had in the past is exactly what you mentioned. I sit here, and I look at a piece of paper, and it gives me a stock number. Okay, I don't know whether that is as big as this cup or as big as a house. If I have a picture, if I have a good narrative description, then I have a chance of making the judgments about which you are talking.

Mr. **Miller**. Thank you. Thank you, Mr. Chairman.

Mr. **Murtha**. Thank you very much, gentlemen. We have other questions for the record.

The Committee will stand adjourned until 1:30 p.m. this afternoon.

[CLERK'S NOTE.—Questions submitted for the record, and the answers thereto follow:]

Question.

GROWTH IN LONG SUPPLY ITEMS

DOD LONG SUPPLY DATA

[Dollars in billions]

	Total inventories	Needed within 2 years	Long supply	Unstratified
1980	43.4	32.3	10.1	1.0
1988	103.2	64.1	33.6	5.4

From 1980 to 1988, DoD's inventories of secondary items grew by 138 percent, from $43.4 billion to $103.2 billion. However, during that time frame long supply inventories grew by $23.5 billion, or 233 percent, much faster than the 98 percent growth rate experienced for the approved force acquisition level, those stocks needed within the next two years. We realize that with new weapon systems coming on line some perturbations are unavoidable. However, these figures are cause for concern. A GAO study of specific items revealed that the major cause for growth in long supply (29 percent) was overestimated use rates.

How can you justify growth of 233 percent in long supply assets?

Answer. The DoD is not satisfied with the growth in inapplicable inventories and is actively working to reverse this trend. We have identified what appear to be the major problem areas and have established eight objectives to address them: (1) improve item entry control; (2) improve requirements determination; (3) control item duplication; (4) reduce lead times; (5) identify alternatives to holding inventory; (6) reduce variation of items; (7) reduce price of inventory; (8) modernize automated systems. Each of these objectives has under it specific technical initiatives that are currently underway. The problems associated with managing an inventory as wide-ranging and complex as DoD's do not yield to quick and simple answers. The solutions will take several years to refine and set in place, but we believe we are on the right track.

Question. In 1988 alone, the growth in long supply assets was more than 50 percent of the growth of total inventories ($4.7 billion of $9.1 billion total growth). How do you respond to the observation that this appears you are either buying the wrong items, have too much money, or both?

Answer. As we have indicated, the growth trend of inapplicable inventories is of concern to senior management within the Department, and is receiving close attention. The problem is being addressed as outlined in the answer to the previous question. We acknowledge there are instances when items are bought that are not subsequently used, however on the whole, the DoD supply system has improved its performance during the 1980s. Many items that are labelled as inapplicable at a specific date become applicable over time and are put to good use. This suggests that funding levels have not been excessive, but have been about right to meet the needs of the Forces.

The experience of the Navy provides an instructive example. Their analysis identifies the following as key factors leading to inventory growth: force modernization and expansion, and the filling of previously unfunded inventory requirements; receipt and retention of Material Turned Into Stores (MTIS); price escalation; stock funding of aircraft carrier inventories; other factors such as program changes, demand pattern changes, increased procurement leadtimes, and a conservative disposal policy. The Navy records for 1988 show an increase in inventory of $1.3 billion attributable to MTIS. This material is primarily the result of fleet modernization in the early 1980s, and is retained in stock today because of a conservative disposal policy. The material was procured for a specific purpose, served that purpose, and is retained because of its future potential use.

Question. What is your response to the GAO preliminary finding that the biggest cause for long supply growth is overestimated use rates?

Answer. GAO's finding is based on a small sample, and thus may not be entirely accurate. Certainly, other factors such as force modernization programs—which reduce but do not totally eliminate the need for items that have been used, repaired, and returned again to use—combined with conservative disposal policies are important contributors to increases in inapplicable assets. Leaving aside any differences of opinion on whether or not use rates constitute the main cause of inapplicable assets, however, there is no question that we need to improve our techniques for estimating them. This need is especially acute in predicting demands for assets to support complex new weapon systems such as Air Force and Navy aircraft.

Question. What specifically are you doing to define use rates better?

Answer. Major initiatives are underway in the provisioning and cataloging processes. The Under Secretary of Defense (Acquisition) has directed a DoD-wide review to find ways to bring about better engineering estimates of reliability, requirements determination, and item identification data. Further automation of the cataloging process is proceeding concurrently to ensure that full advantage can be taken of the gains in the provisioning techniques. Clearly, initial provisioning of spares for new weapons systems is not an exact science but rather a prediction of expected usage and forecasted failures based on engineering estimates by technical specialists and contractors. If the engineering estimates are in error, the demand will be different than initially computed. During the item's procurement lead time, which can be 2 to 3 years for advanced systems, a number of changes can affect the actual quantity needed. Relatively few items experience stable requirements throughout this time, and the longer the lead time, the greater the possibility that we may buy too few or too many assets. However, despite these difficulties, we are taking numerous actions that are expected to produce better projections of future demands. In the Navy for example, greater standardization of ships' equipment is being pursued to require fewer items to be provisioned. A Flag-level Logistics Review Group is evaluating the logistics plans for each new major system being acquired to ensure greater discipline in the Integrated Logistics Support process. Readiness Based Sparing techniques for new weapons systems require more careful reviews of the quality of the data on item reliability and unit maintenance capabilities. All the Services are developing additional automatic data processing capabilities and better management information systems.

Question. Mr. Reay, you say in your statement that you do not budget funds for economic retention stock, contingency retention stock, numeric retention stock or potential excess. The fact remains, however, that these three categories, which comprised $10.1 billion of total secondary inventories in 1980, comprised $33.6 billion in 1988. If funds budgeted for approved force acquisition levels wind up in an on order excess condition, or buying material too early, or satisfying overestimated demand rates, they may as well have been budgeted for long supply assets because the effect is the same, isn't it?

Answer. The DoD develops its secondary item funding requests based on requirements anticipated to materialize during a future budget year. The projections are made using techniques commonly accepted by professionals in the field of logistics. However, to the extent that estimates of future events are imperfect, we wind up with items that are not applicable during the budget year. Many of these items will become applicable over time, while others, which may not be put to use, clearly are valuable when one considers the various military contingencies the Services must be ready to face. We have stated previously our concern about the trends in inapplicable assets, and are studying carefully the steps that need to be taken. It is important that the misleading terminology sometimes used to describe our inventories (e.g., "long supply" and "unrequired") not cause us to rush into simplistic and ultimately ineffective solutions.

Question. Unstratified assets, which have been defined primarily as material in-transit, increased from $1 billion in 1980 to $5.4 billion in 1988, an increase of 440 percent. Why do unstratified assets represent such a larger percentage of total inventory in 1988 than in 1980 and what are you doing to reduce this amount?

Answer. Approximately $3.8 billion of the $4.4 billion in-transit increase is due to Navy inventories. In-transit represented less than 1 percent of total Navy inventories in 1980 and 12 percent in 1988. The most significant reason for the increase is that the Navy has greater accounting visibility of these stocks, therefore, more is being reported in financial inventory reports. While now being visible in the reports, these in-transit assets have always been considered in the Navy budget formulation process.

There are two categories of in-transit totalling $2.4 billion for which the Navy has greater visibility and began reporting in its reports subsequent to 1980. The first category is called Customer In-Transit (CIT) and represents the financial value of not-ready-for-issue depot level repairable material being returned to the supply system by customers as the result of a replenishment action. Reporting of CIT began in 1981 at the onset of the Navy test to stock fund finance non-aviation depot repairables in 1981 and increased when the test was expanded in 1985 to include aviation repairables. The CIT value at the end of 1988 was $1.2 billion.

The second category is Stock In-Transit (SIT) which represents material in-transit between storage locations. SIT movement is controlled by the Aviation Supply Office and the Ships Parts Control Center, the Navy's two inventory control points. The SIT value at the end of 1988 was $1.2 billion.

A third area of growth is material in-transit (MIT) from procurement, which increased by $0.8 billion from 1980 to 1988. A large part of this growth is attributable to the growth in procurement obligation programs and the tightening of controls on the management of MIT ledgers to ensure that the MIT values remained outstanding until the in-transit material was properly received in inventory.

The last area of growth of about $0.6 billion relates to in-transit between Other Supply Officers (OSO). This represents material movement between storage locations of two accountable officers, and is largely the result of capitalizing certain stocks into the Navy Stock Fund. Capitalization of inventory into the Stock Fund results in material transfers being recorded on an OSO basis as opposed to a buyer-seller relationship.

Some near-term Navy initiatives to reduce in-transit are: (1) using computer-assisted matching techniques for matching in-transit issues with in-transit receipts; (2) clarify procedures to execute follow-up for unmatched in-transit receipts; (3) develop more definitive procedures to track repairable material retrograde; (4) utilize bar coding on retrograde turn-in documents to facilitate the matching process; (5) match and adjust inventory control point and stock point procurement dues files as necessary to ensure stock point files reflect all anticipated dues and, therefore, process correctly when received. In summary, the Navy is actively pursuing short-term initiatives to reduce in-transit material. Increased automation and structured procedures through ADP modernization are the keys to managing in-transit processes more effectively.

PRIORITY OF SPARES MANAGEMENT WITHIN OSD

Question. The House report accompanying the 1985 Appropriations Bill requested the status of DOD's spare parts management reforms. Secretary Weinberger's report to the Committee indicated that "to spearhead this ambitious initiative, the Office of the Deputy Assistant Secretary of Defense for Spares Program Management was established . . . to ensure that every element of spares management is being upgraded properly and that these major reforms are institutionalized within the Department."

This office has already been disestablished and its functions reorganized. Why is this?

Answer. When the office was established, its primary mission was to oversee the institutionalization of numerous spares initiatives undertaken by the Services and DLA. The Services and DLA moved out very agressively to implement their spares improvement programs. Accordingly, the DoD has had a number of successful system-wide changes in place for some time. Problems with spares pricing have substantially abated and, consequently, vigilance of this area was shifted to the existing DASD (Logistics). The Services and DLA continue to have dedicated "spares management" organizations reporting to DASD (Logistics).

Question. What does this say about the importance of spares management issues at the upper levels of OSD?

Answer. Spares management continues to receive high level attention within OSD and, indeed, all of DoD. Regularly scheduled meetings, chaired by OSD, are held with the Services and DLA to review spares management developments and share new ideas for further improvement. While the emphasis formerly was on "spares pricing," today a more encompassing scope of spares management responsibilities is being exercised by DASD (L). We have consolidated spares management functions, more clearly fixed responsibility and accountability, provided for integrated spares planning, and improved technology enhancement management.

Question. What specific actions can you cite as evidence that the spares management initiatives of the mid-1980's are being institutionalized within the Department of Defense?

Answer. In 1983 the Secretary of Defense initiated a program of basic reform in the manner in which spare parts are managed. Over 500 initiatives were established by the Military Services and DLA. These initiatives have been completed and have resulted in calculated savings of over $6 billion. Specific institutionalized initiatives include:

Major revisions to the spare parts breakout program regulation, Defense Federal Acquisition Regulation Supplement (Sup 6).

Improved technical data management to include automation of technical data repositories.

Changes to the way costs are allocated to more accurately reflect the intrinsic value of an item.

Maintenance of "Hot Lines" to allow employees at all levels to identify and instances of overpricing for resolution and possible refunds from contractors.

Greater consideration of spare parts and Departmental purchases overall.

Increased competition on spare parts and Departmental purchases overall.

Development of additional sources for supplies through source development initiatives.

Increased use of value engineering where the price of a spare part exceeds its intrinsic value.

Expanded programs to increase employee awareness of the need for critical analysis of prices paid for items.

Development of reverse engineering techniques to ensure that the Department can develop competitive technical data packages where none now exists, or where the prime contractor refuses to provide the data.

PROVISIONING

Question. Much of the discussion today is about replenishment spares, but there are some issues to be addressed within initial spares, also. Generally, initial spares are those needed during the first two years in the life of a weapons system before adequate actual demand data has been generated to use in computing buying requirements for replenishment spares. There appears to be much room for improvement in the provisioning process.

For example, according to the GAO, for those items which DLA buys for the Services in support of new systems, on average there is no demand for 56 percent of the items during the first two years and no demand for 44 percent during the first three years. In the 4–6 year time frame, there is still no demand for approximately 35 percent of the items.

Investigators have reported that a couple of years ago Army units in Europe returned approximately 70 percent of initial spares as excess to Army depots in the U.S. Army officials said too much was purchased because they didn't have enough engineers to assess adequately what the contractors said was needed.

Would you agree that this is an area which needs top management attention?

Answer. In March 1989, the Under Secretary of Defense (Acquisition) recognized provisioning as an area that needed top-level attention, and established a joint Service/DLA task group chaired by OSD.

Question. What initiatives do OSD and the Services have to improve the provisioning process?

Answer. The task group is reviewing current policies and procedures, examining current initiatives, and proposing future enhancements that will have positive impacts on the provisioning process. Areas directly within the provisioning process as well as functions affecting the execution of provisioning are included within the scope of the study. These study areas include: the DoD Standardization and Item Reduction Program; Integrated Logistic Support (ILS) management; Logistic Support Analysis process; reliability engineering; configuration management; Computer Aided Acquisition and Logistics Support (CALS); the Federal Catalog System; Interchangeability and Substitutability; ADP System Modernization Plans; maintenance policy; and nondevelopmental item acquisition procedures. The group is scheduled to report findings and recommendations in September 1989. In addition to this OSD effort, both the Army and Navy have internal provisioning reviews focusing on short-term and long-term process improvements. The Army report is scheduled for release in July and the Navy study related to provisioning for shipboard equipment is due to be completed in September 1989.

Question. Why can't more responsibility be placed on the contractors during the provisioning process with warranty measures and penalties and rewards for certain levels of parts reliability?

Answer. Such techniques are present in the DoD today, particularly during periods of Interim Contractor Support and Contractor Logistics Support. However, they are not part of the standard provisioning process. Still, there are case-by-case examples of spares incentives and warranties being applied. These involve performance contracts, multiple source vendors for spare parts, up-front contractor production and support cost commitments, and alternate vendor qualification at government request. Even more so than end item warranties, secondary item warranties are complicated by U.S. Forces dispersed around the world, making it difficult to determine which items are best candidates for parts reliability warranties, and how to equitably implement spares warranty provisions. This challenging area will also be analyzed and reported out on in the provisioning task group's final report.

Question. Does DoD have the right number of people, properly trained and with adequate experience, participating in the provisioning process?

Answer. The numbers and especially the skills of the people involved in provisioning are also areas of examination within the OSD study. Initial findings indicate that there is a deficiency of personnel in the acquisition planning processes which creates logistics management challenges that are not easily solved. Training enhancements continue to be put in place to hasten the learning curve of personnel in this high turnover logistics functional area. Other personnel enhancements include automated logistics planning processes, statement of work and technical documentation generating systems, and on-line access to contractor engineering and data files.

B-1B INITIAL SPARES PROVISIONING

Question. The B-1B bomber has experienced problems due to lack of spare parts. The demand rates for some items have been vastly different from projections. For example, a fuel boost pump which was supposed to last for 55,000 hours according to the contractor estimate and 10,000 hours according to the Air Force estimate has been failing every 3,300 hours. A tail strobe light which the Air Force and the contractor thought should fail every 5,500 hours is failing every 236 hours. The list goes on and on.

What are the current mission capable rates and cannibalization rates for the B-1B?

Answer. The mission capable rate was 48.4 percent in April, 1989. The cannibalization rate was .8 per sortie.

Question. How do they compare with planned goals and with other systems at this stage?

Answer. The mission capable rate is running very close to the interim SAC goal of 50 percent. The cannibalization rate is currently below the current SAC goal of 1.0 or less per sortie. The overall trend is improving in both areas. The B-1B is most comparable with the F-111 aircraft because it was a totally new aircraft with the latest technologies and characteristics similar to the B-1B. A comparison of the B-1B with the F-111 mission capable rates shows they have followed the same trend in the three years following Initial Operational Capability.

Question. Have problems with the central integrated test system (CITS) identifying numerous false failures been a contributing factor in the B-1B parts problems?

Answer. Problems with the CITS have not significantly contributed to the B-1B parts problem. The impact of problems with the inflight CITS function are largely mitigated through the use of Ground Readiness Tests (GRTs) by maintenance personnel to verify faults prior to removing and replacing parts. Although it takes extra time to run GRTs, it does help discriminate between legitimate CITS Maintenance Codes (CMCs) and those which are caused by transient conditions. Also, Retest OKs (RETOKs) can exist with the use of CITS data, but it has not been a significant problem. The potential RETOK problem has been alleviated somewhat by the use of the CITS Ground Processor to Core Automated Maintenance System Interface System (CCIS), otherwise known as the "CITS Filter." It was developed by Air Force personnel during CITS maturation to filter out false alarms. By correlating their RETOK data with the CMCs which caused the part to be removed, maintenance personnel can filter out CMCs which have experienced RETOKs.

Question. Especially given the high profile and controversy of this aircraft, are you taking any special measures to improve the situation?

Answer. The Air Force has been taking aggressive action to improve the spare parts situation within and between the Strategic Air Command (SAC), Air Force Logistics Command (AFLC), the B-1B System Program Office (SPO), and Rockwell International (RI). HQ SAC and AFLC have closely monitored high failure items for negative trends in Mean Time Between Failure (MTBF) and Mean Time Between Maintenance Actions (MTBMA). The two items cited as having excessively high failure rates were identified through this process in SAC's "Hurt List" and the technical problems have been solved. The problem with the Tail Strobe Lights which were projected to have 5495 hours MTBF but actually had 236, has been solved through a Time Compliance Technical Order (TCTO) soon to be issued. The cause of the Fuel Boost Pump problems has been determined and a TCTO fix has been developed. These are but two examples of how close cooperation between SAC, AFLC, and the B-1B SPO has resulted in fixes for high failure items. Service revealed deficiencies have been prevalent in every major weapon system developed, and the B-1B has followed the same trend. The spare parts situation continues to improve.

PROCUREMENT LEAD TIME

Question. Two and one-half years ago the Under Secretary of Defense directed that procurement lead times should be reduced by approximately 25 percent by the end of fiscal year 1988. DoD has estimated that, in total, each day of procurement lead time costs about $40 million, so attainment of the reduction goal could result in big savings.

What were average DoD procurement lead times at the end of 1986 and the end of 1988?

Answer. Due to variations among the Services in how lead time is calculated and how data is collected, no overall DoD lead time calculation is possible. Listed below, by Service, is the best data available.

The Navy showed a decrease from 929 days in procurement lead time at the end of fiscal year 1986 to 881 days at the end of fiscal year 1988, due to improved contract management and tracking, improved item cataloging, improved material testing procedures, and better utilization of ADP capabilities.

Extrapolating from the best data available for the Army, overall lead times increased from about 668 days as of the end of fiscal year 1986 to about 741 days as of the end of fiscal year 1988. Among the reasons for the increase were the impact of quarterly

Army stock fund obligation ceilings, the DoD replenishment parts breakout program, Acquisition Letter 83-15 (which curtailed the use of unpriced contractual instruments), and Public Law 98-577 (which required 15 days between synopsis and solicitation). These factors offset the lead time reduction initiatives implemented by the Army, which include use of long term contracting, elimination of unnecessary reviews, increased use of automation, intensive management of requirements while in the technical phase, use of planning documents to expedite procurement, and packaging of like requirements.

The Air Force reports an overall lead time of 613 days for consumable items as of the end of fiscal year 1986, with a decrease to 486 days at the end of fiscal year 1988. For recoverable items, overall lead time decreased from 788 days at the end of fiscal year 1986 to 636 days at the end of fiscal year 1988.

Question. The Committee realizes that certain actions which increase competition, such as break out of spare parts, also increase lead times. Do you have any estimate of how much lead times have been increased due to provisions of the Competition in Contracting Act?

Answer. The Competition in Contracting Act, which became effective in April 1985, was one of several factors affecting Procurement Administrative Lead Time (PALT) between fiscal year 1984 and fiscal year 1986. PALT is the time between receipt of purchase request and award of contract. In the period in question, overall PALT increased by approximately 45%. Although a precise determination of the reasons for this increase is not possible, it is likely that much of the increase was due to the implementation of CICA.

Question. The General Accounting Office suggests that basing production lead time estimates on suppliers' latest quotes rather than historical experience may result in savings. Have you examined this idea and/or are you doing anything to implement it?

Answer. An April 24, 1989, memorandum from the Under Secretary of Defense (Acquisition) to the Military Departments and DLA directed that a series of actions be undertaken to reduce both lead time and inventory. Among these actions are intensive analysis of the top 100 items in dollar value of annual demand at each Inventory Control Point (ICP) in order to determine the maximum lead time reduction that can be achieved by the end of fiscal year 1990 and fiscal year 1992. The use of innovative contracting and inventory management methods to achieve such reduction was specifically encouraged in the memorandum. In addition, a May 8, 1989, DoD Conference on Reducing Secondary Item Lead Time identified a series of actions to be pursued by all DoD components. Primary among these is the need to request shorter production lead times in solicitations and press for continued reductions. These actions implement the intent of the GAO proposal in terms of moving away from historical experience as the sole basis on which to estimate production lead times.

VALIDITY OF REQUIREMENTS

Question. One concern this Committee has had in recent years relates to the validity of computed spare parts requirements. Although the basic requirements for all services are automated and similar (anticipated demand plus safety level plus lead times, etc.) there is always the opportunity to change the programmed criteria or make management changes later.

For example, preliminary analysis by the GAO reveals that in June of last year the Air Force authorized the reclassification of unneeded on order stock to required stock if logistics personnel decided not to terminate the order. The result was to move approximately $600 million of stock from an unrequired category to a required one.

How can you assure the Committee that such "gaming" of the requirements process is not a commonplace occurrence?

Answer. The Air Force's use of a termination "additive" to the requirements computation was not an intent to "game" the system but to conserve resources. The technique was used to preclude continual review of repetitive termination notices on items for which conscious, documented decisions had already been made that termination of procurement was not in the best interest of the government. This action caused the items to stratify as required inventory, however, in addition to the perception of an integrity problem, the additive caused unnecessary work for item managers and created other problems in the computation. The use of the additive was discontinued in November 1988.

The validity of Inventory Control Point staff decisions concerning significant deficit or inapplicable items is verified by senior management through policy review committees, "murder boards" of proposed high dollar procurements, and audits of the biggest value due-in inapplicable items. In addition, a significant majority of items are reviewed closely during the periodic stratification process. The Navy stratification process also includes a "scrub" procedure whereby senior Headquarters personnel review high dollar value inapplicable or deficit items and propose further management action when appropriate.

In a system as large and complex as DoD's, where many thousands of buys, modifications, and cancellations are initiated, there inevitably will be occasions when a decision may result in files changes designed to reflect an economic decision to retain inapplicable assets on-hand or on-order. However we are committed to genuine progress in reducing our inapplicable inventories, and simply do not encourage or condone "gaming."

TRANSPORTATION OF PARTS

Question. In fiscal year 1989, the Congress imposed a funding "floor" on depot maintenance. This was done to ensure that the funding provided for depot maintenance would not be reprogrammed to other O&M areas unless approved by the Congress.

One area that has in the past benefitted from a reprogramming of funds out of depot maintenance is supply operations. From fiscal year 1985 to fiscal year 1988 the Air Force has reprogrammed a total of $754 million out of depot maintenance for, among other things, supply operations.

The supply operations account includes funding for second destination travel or SDT. SDT is the movement of items from the United States to overseas locations.

Is the fiscal year 1990 budget request for SDT adequate to ensure that all necessary spare parts and equipment are shipped overseas?

Answer. SDT is now funded at 90 percent of total requirements. All mission critical spares and equipment will be shipped overseas at this funding level. However, as a cost avoidance measure to conserve scare SDT funds, we are shipping many high value weapon system spares and replacement parts by sealift, but at a loss of our overseas command's mission readiness and sustainability. Shipping parts by channel airlift requires only 10 days of transit time versus 49 to 60 days by sealift. By selectively using airlift we can rapidly respond to spot shortages of parts for our widely dispersed aircraft fleet. One other aspect of the 10 percent funding shortage is that cargo backlogs (i.e., deferral of WRM munitions and equipment) will continue but at less than one-half of the fiscal year 1989 deferral rate.

Question. How does the availability of spare parts affect mission capable rates? Has the Air Force experienced any trouble meeting mission capable rates due to a shortfall in SDT?

Answer. A shortage of spare parts would not drive mission capable (MICAP) rates higher. Our overseas commands have reported some adverse trends in their mission capable rates. PACAF reported hours per MICAP up 5 percent and USAFE reported total MICAP hours up 32 percent at the end of fiscal year 1988. However, these higher rates cannot be totally attributed to the SDT account. MICAP rates are also influenced by the health of the depot maintenance (DPEM) and spares accounts. For this reason we have worked to ensure an appropriate level of dollars are available for DPEM, spares, and SDT to balance the O&M account and reverse these negative MICAP indicators.

Regarding the effect of the availability of spare parts on mission capable rates within the Navy, the stock funding of aviation depot level repairables (AVDLRs) in fiscal year 1985 allowed the supply system to balance funding between procurement and depot repair of assets more effectively, thereby increasing availability rates for the AVDLRs to resupply of aircraft carriers and the many other aviation support sites.

Question. Has the funding on depot maintenance caused the Air Force to reprogram from other accounts into the supply operations accounts? Have these increases been used to fund any shortfalls in the SDT account?

Answer. The funding floor on depot maintenance has created significant problems in attempting to execute the current supply operations program. It forced management actions to realign funds within supply operations in an attempt to maintain balance among those resources. There are short term fixes that cannot be sustained over the long term without significant degradation to Air Force readiness. Within these realignments, $5.5 million was placed in the SDT account partially to cover a price growth due to an increase in sealift rates.

VALUE ENGINEERING

Question. Value engineering is one of the DoD's initiatives to lower spare parts costs. Value engineering may involve reengineering, developing additional sources, or creating a competitive environment in other ways. The Army Materiel Command estimates it avoided costs of $77 million in 1988 and $525 million since 1984 due to the value engineering program.

What are comparable statistics for the Navy and Air Force?

Answer. The Army data should be corrected as follows: for fiscal year 1988, there were $739 million in savings as a result of approved and implemented in-house Value Engineering Proposals and contractor submitted Change Proposals. The savings were composed of $313 million in "hard dollar" savings, i.e., money that was immediately available for reapplication, and $426 million in cost avoidance for the budget year and budget year plus one. For fiscal year 1985 through fiscal year 1988, the savings totalled $3.7 billion, in both "hard dollar" savings and costs avoided. Value engineering savings for the Navy are: Fiscal year 1984, $182 million; fiscal year 1985, $406 million; fiscal year 1986, $556 million; fiscal year 1987 $1.25 billion; fiscal year 1988, $977 million. For the Air Force: fiscal year 1984, $502 million; fiscal year 1985, $681 million; fiscal year 1986, $691 million; fiscal year 1988, $658 million.

Question. What priority does OSD place on value engineering programs?

Answer. Value Engineering has a very important role as a tool for continued improvements in the utility of a part as well as price reductions through analysis of the function of an item.

Question. What formal guidance has been issued by OSD and the Services concerning value engineering?

Answer. Value Engineering is covered in the Federal Acquisition Regulation, Part 48, and amplified in the Defense Federal Acquisition Regulation Supplement as it applies to Defense contracts. Provisions for application of VE clauses in contracts as well as detailed methods for determining the return on investment are outlined. In addition, the Department maintains various operational regulations at Service and DLA levels to capitalize on proven value engineering techniques. OSD has issued DoD Directive 4245.8, "DoD Value Engineering Program," November, 1986. The Army has issued AR 5-4, "Department of the Army Productivity Improvement Program." The Navy has issued SECNAVINST 4858.2E, "Department of the Navy Value Engineering Program," July, 1984. The Air Force has issued AFR 320-1, "Air Force Value Engineering Program" and Air Force Pamphlet 320-2, "Guide for Contractors."

REVERSE ENGINEERING

Question. Reverse engineering is the process of making specifications and drawings by physically measuring and examining parts to produce technical data packages which may be used to develop alternate production sources. This Committee has supported reverse engineering efforts and provided funding several years ago for a pilot program.

What were the results of the pilot program? What savings were realized? What was the ratio of savings to investment?

Answer. From April 1985 to April 1988, DoD conducted a pilot program to reverse engineer (RE) replenishment parts being procured from sole sources due to the unavailability of complete, unrestricted technical data packages (TDPs). The results of the pilot program showed an average return on investment of 14 to 1 and an expanded field of competition for many of the parts. Since April 1988, the Services and DLA have selected 927 items for reverse engineering out of the nearly 9,000 items which were screened. The expected savings for reverse engineering for a projected 5 year period on those items is $19.7 million.

Question. What level of effort is each Service devoting to reverse engineering in 1989 and what is planned for 1990?

Answer. The Army was planning on maintaining a $3.3 million per year level of effort after completion of the pilot program. For FY 1989, $1.2 million of unexpired funds remain. The Army Materiel Command has not received additional funding for FY 1989 or beyond, and the program is slowing down.

In the Navy, 13 of the 14 projects carried over from the pilot program are scheduled for completion during FY 1989, with the last item to be completed in November 1989. These engineering services contracts ($5.2 million) are augmented by more than 40 in-house reverse engineering projects already underway. In addition, during the first half of FY 1989, 20 new items have been approved for inclusion in the Replenishment Parts Purchase or Borrow (RPPOB) Program, which the Navy regards as one of the best ways to implement reverse engineering techniques. The RPPOB Program was mandated by the 1985 DoD Authorization Act which required DoD to ". . . provide domestic business concerns an opportunity to purchase or borrow replenishment parts from the United States for the purpose of design replication or modification, to be used . . . in the submission of subsequent offers to sell the same or like parts to the United States . . ." Eight of the 14 technical data packages submitted during the period have been accepted, increasing to 40 the number of packages provided to the Navy with virtually no upfront costs expended, netting a future cost avoidance of $3.8 million. FY 1990 should see increased Navy emphasis on using the RPPOB Program, additional in-house projects, and more reverse engineering associated with hardware and software production contracts.

In the past year, the Air Force participated in 33 vendor fairs, 13 of which were hosted by AFLC. The fairs were designed to provide contractors with a display of items which were scheduled for purchase and in which AFLC desired to increase competition. The fairs reached an audience of over 800 potential sources for manufacture from all sections of the country, and some from overseas. This concept has been expanded into a technology fair to include AFLC requirements organizations in addition to the competition advocate. Over 3500 firms have been in touch with AFLC as part of an effort to expand the industrial base. This emphasis on developing new sources contributed to a first time competitive procurement of over 8000 items with a cost avoidance of $150 million. The efforts in the reverse engineering arena will continue at the same level experienced during the past year.

Question. Has policy and guidance for reverse engineering been institutionalized? Is there a commitment to reverse engineering becoming a permanent program?

Answer. A draft DoD Directive has been developed and is being staffed prior to publication, which is expected in 1989. The Army has established reverse engineering as a permanent program and each major subordinate command has institutionalized its program. The Army is fully committed to supporting reverse engineering, provided that adequate funding levels are available. The Navy is firmly committed to the permanent establishment of reverse engineering as a valuable tool in the enhancement spare parts management initiatives. The Air Force has an active program and is committed to utilizing it as a valuable tool to lower costs and foster new sources of manufacture.

Question. Is this an area where a modest investment could result in a significant savings?

Answer. Yes. The pilot reverse engineering program demonstrated savings of over 14 to 1. An example of the potential savings is the Heat Shield for the F-16 aircraft brake assembly. The unit price for this item was reduced from $23 to $6 after reverse engineering, resulting in an estimated five year savings of more than $500,000. The Navy, from an initial investment of $6.4 million, expects to realize life cycle savings of $60.4 million on the 24 items which were projects in the pilot program.

TERMINATING ON-ORDER EXCESSES

Question. For several years the General Accounting Office has maintained that the Department of Defense could make better use of taxpayers' dollars by terminating more orders for unneeded material. Although some improvement has been made, there appears to be much room for further progress.

Preliminary GAO investigations indicate the Air Force and Navy may only be giving lip service to the on order excess termination issue. For example:

a. An April 1986 Air Force memorandum stated that reducing quantities on order could hinder Air Force Logistics Command budget execution goals.

b. A March 1987 AFLC memorandum instructed air logistics centers to avoid terminating on order assets whenever prudent.

c. In May 1988, the DoD inspector General reported that the Navy's Aviation Supply Office still did not have an effective process for identifying and terminating unrequired on order assets.

Does OSD regard the termination of on order excesses as an important issue which should be pursued and which could result in considerable savings?

Answer. OSD regards the appropriate use of contract terminations as an important issue with the potential for significant savings. OSD is now working with the DoD Inspector General on a draft summary report on audits of contract terminations. This report will summarize the results of audits made by GAO and the DoDIG in this area between November 1985 and August 1988. OSD will carefully review the recommendations of the summary report to determine the need for improvements in the DoD contract termination process.

Question. What guidance has OSD provided to the Services concerning this matter? Is there an OSD directed goal for termination of on order excesses?

Answer. There is no official OSD guidance on contract terminations at this time, nor is there an OSD directed goal for termination of on order excesses. However, a draft DoD Instruction, "Termination of Contracts for Secondary Items That Are No Longer Needed," is being developed. Upon issuance of the DoDIG summary report cited above, the draft Instruction will reflect the recommendations made and the OSD response to them.

Question. What actions have each Service taken to increase terminations of on order excesses? Why can't you do more?

Answer. The Navy is aggressively pursuing contract terminations when current requirements no longer support a procurement action. In fiscal year 1988, the Navy initiated a tracking system so that contract termination requests could be monitored more closely. The results of terminations requested at the Navy's two Inventory Control Points for fiscal year 1988 and fiscal year 1989 (thru March) are as follows:

[Dollars in millions]

	Fiscal year—	
	1988	1989
Termination requests	92.8	%54.8
Recouped	31.7	20.4
Termination costs	8.9	2.7
In process	52.2	31.7

The efforts by the Navy's Aviation Supply Office (ASO) have been especially noteworthy. During the period January through June 1988, ASO sent 1724 letters to Defense Contract Administrators requesting the termination of $295 million in contracts. Through April 1989, ASO had received responses to 733 of the letters. Two hundred fifty-nine responses indicated 100 percent termination charges for contracts valued at $176 million. Therefore, the Navy will elect to receive this material. The remaining 474 responses for contracts valued at $63 million will be terminated with some additional termination charges yet to be determined. More recently, ASO started submitting termination requests directly to the contractor. During the period July through November 1988, ASO sent 2471 letters directly to Defense contractors requesting the termination of contracts valued at $359 million. Through April 1989, ASO had received responses to 423 of the letters. Three hundred seventy-three responses indicated 100 percent termination charges for contracts valued at $105 million. Once again, the Navy will elect to receive this material. The remaining 50 responses generated contract modifications being issued for $1.6 million.

Navy has not confined its efforts to the cancellation of contracts. A routine review of purchase requests that have not yet resulted in contracts is conducted to identify additional cancellation candidates. From October to December 1988, the ICPs cancelled purchase requests valued in excess of $800 million overall. The Navy is committed to an aggressive program to cancel contracts and purchase requests for material no longer required.

The Army has recently initiated actions to more actively pursue contract terminations. They are identifying all excess on-order and excess on-hand assets applicable to higher assemblies and seeking to arrange for such assets to be included in production contracts as government-furnished materiel. Procedures are being developed to enhance the contracting officer's ability to make comparison analyses for cost effective termination decisions. Further, they are looking at the training programs for item managers and contracting officers to ensure adequate training is provided on contract terminations. The Army is also looking at establishing the methodology to attack the effectiveness of the termination decision-making process.

The Air Force has a vigorous program to review all computed excess quantities for possible termination. They have implemented a number of improvements to procedures, which include standardized processing times, a uniform method of obtaining termination costs from contractors, and performing more timely reviews. They now have an automated method for detecting and correcting errors in the computation process. The most significant improvement is the development and implementation of a software program model which assists item managers in making economical termination decisions. Using various factors, the model weighs the cost to terminate a contact against the cost of continuing procurement. While the use of the decision model has resulted in an increase in termination actions, economics cannot be the sole factor in the decision process. Other logistics considerations, such as the stability of demands, planned requirements, projected production plans for the next higher assembly, the item's supply position and the impact on force readiness require a thorough assessment before considering the economic trade-offs involved. Additional considerations such as the adequacy of technical data to reprocure the item in the future, expected long lead time and diminishing manufacturing sources must also enter in the decision.

The Air Force is presently studying the benefits of adding an additional year of requirements to computations which will extend the point at which items become eligible for termination. Their budget is based on a two year time span and the termination point currently falls in the middle of the budget period, thus they run the risk of terminating an item one year and reprocuring it the next. If the study proves the change will avoid perturbations and turmoil in our spares procurement, they plan to include it in future system improvements.

Question. For the record, for each Service for the last three fiscal years, provide the total amount of on order excess material, the amount of terminations and the percentage the terminations represent.

Answer. Due-In Long Supply (DILS) is a Navy term for material on-order for which there is currently no projected requirement through the budget year. A very dynamic budget environment is a primary cause of the DILS and it is Navy's contention that much of this material is ultimately used to satisfy valid Navy requirements while a somewhat smaller percentage ends up as actual excess material. The value of excess on order (DILS total) for the last three years is as follows:

Fiscal year:	*Millions*
1986	$934
1987	950
1988	79

The value of contracts terminated that were Due-In Long Supply (DILS) cannot be precisely determined because the asset position of an on-order item is constantly changing. However, fiscal year 1988 and fiscal year 1989 (thru Feb.) contract termination data is as follows:

[Dollars in millions]

	Fiscal year	
	1988	1989
Termination requests	$92.8	$54.8
Recouped	31.7	20.4
Termination costs	8.9	2.7
In process	52.2	31.7

For the Army, the amount of on-order excess material is as follows: Fiscal year 1986, $425 million; fiscal year 1987, $272 million; fiscal year 1988, $375 million.

With respect to terminations, the Army does not have readily available data to identify terminations that resulted from on-order excesses. However, the Army has actions underway to improve their capability to obtain such data.

For the Air Force, the amount of potential terminations is as follows: fiscal year 1986, $623 million; fiscal year 1987, $972 million; fiscal year 1988, $656 million. The amount terminated for each year is $47 million, $127 million, and $117 million, respectively. The percentage of terminations is 8 percent, 13 percent, and 18 percent, respectively.

Question. What were the primary reasons for the generation of the $243.7 million of Air Force on order excesses that were terminated during the past two years? Also, the primary reasons for the $500.9 million on order excesses which were not terminated due to other management decisions? What actions has the Air Force taken to prevent recurrence of these on order excesses?

Answer. The most common reason for the termination considerations of the $243.7 million was significant changes that occurred in the items' requirements since the buys were initiated. Some of these changes were the result of fewer failures than predicted, decreases in flying hours, and a recent change in the Air Force's direct support objective (DSO) for certain tactical aircraft (e.g., reduced support for wartime sorties). The referenced March 1987 AFLC memorandum did advise item managers to avoid terminations where prudent but cautioned them to closely scrutinize the effects of the DSO changes. The change did result in some terminations. Fluctuations in the asset position of items, (e.g., materiel returns, inventory adjustments, change in condition, etc.) and changes in the management concept from consumable to reparable also caused the items to compute as potential terminations and resulted in the termination decisions. Procurement was not terminated on $539 million in 1988 because items had a history of fluctuating demands, an increasing future program indicating probability of future procurement or other facts not reflected in the requirements computation, such as expected changes in the item's reliability, new applications or similar technical considerations. Some of the items were far enough into production or delivery to make termination uneconomical. There were also those items not terminated because procurement was intentionally initiated in advance of the requirement to achieve significant cost and lead time savings, e.g., spares acquisition integrated with production to combine initial and replenishment requirements and the expanded advance buy (four years requirements for the B-1). Factors which indicate a high probability of future use are primary considerations in the decision to continue procurement of an item.

Question. What were the contract termination costs for the $243.7 million of on order excesses terminated by the Air Force during the past two years?

Answer. Because of the way records are kept (item managers are not required to maintain records of termination settlement costs, and procurement officers keep records by contract number rather than by item national stock number), it would be extremely difficult to provide the contract termination costs for the $243.7 million. This amount includes only the terminations reported during the March computation cycles for the past two years while potential terminations are actually reviewed quarterly and other items could have conceivably been terminated. Additionally, by regulation, contractors have up to one year to submit final contract settlement costs.

Question. To what extent has the Air Force decremented its fiscal year 1990 aircraft spares procurement budget to reflect procurement cost savings obtainable by termination of on order excesses?

Answer. The Air Force decremented their fiscal year 1990 funding request by $118.6 million. This decrement is made in recognition of fact-of-life changes associated with spare parts requirements, and also for the market dynamics which result in price savings. It needs to be highlighted that termination of on-order procurements does not result in a dollar-for-dollar return. First, termination costs may be incurred. These costs can be minimal or as much as the contract cost itself. Secondly, depending on the year the dollars were obligated, and the fact that the Federal Acquisition Regulation allows up to one year for termination claims to be submitted by the contractor, terminations may free up dollars in an expired year.

BUYING IN EXCESS OF ECONOMIC ORDER QUANTITY

Question. Several years ago, the Services increased their minimum order quantities from a three month supply to a one year supply to help offset procurement lead times. Both the General Accounting Office and the Logistics Management Institute have reported that the practice of buying more than the economic order quantity has contributed to the tremendous growth in long supply assets. Both GAO and LMI have recommended that the Services eliminate the one year minimum order quantity and only override the EOQ when it is clearly cost effective to do so, taking into account both price reductions from greater quantities and increased holding and other costs.

What is DOD's current policy on buying in excess of the EOQ?

Answer. DoD's current policy is to buy the EOQ unless specific item characteristics indicate that Economic Production Quantities (EPQs) may provide offsetting savings to justify increased order levels.

The LMI report recommends that the procurement economies available through EPQs be solicited so that the best (most economic) offer can be evaluated at the time of contract award. They term this a "Dynamic Order Quantity."

Question. Have the recommendations of the GAO and the LMI been followed?

Answer. The Army initiates cost effective buy-ahead actions under the provisions of Army/DoD policy. This authorization includes life-of-type, quantity discounts, economic lot size buys, and the execution of competitively awarded option clauses.

The Navy agrees there are savings to be obtained through the use of EPQs when they are known, but has found that many contractors will not provide this information unless they believe Navy will actually buy that quantity. Consequently, Navy has found it necessary to solicit quantities higher than the EOQ in order to actually obtain the pricing information needed to make the "Dynamic" order quantity worthwhile. For selected items which do not exhibit decreasing demand, Navy will apply these techniques.

The Air Force implemented the policy of purchasing a minimum of 12 months stock for consumable items in 1984 as a result of an Air Force Management Analysis Group (AFMG) study which concluded Air Force is most vulnerable to excessive prices when small quantities of low dollar items are purchased and recommended consolidation of purchases. Since that time the Air Force has realized significant savings in the number of purchase requests and in procurement work load. The LMI study recognized a 35 percent decrease in work load and a reduction of 17,500 purchase requests for Air Force consumable items. The Air Force believes these savings along with the price breaks obtained by purchasing larger quantities outweigh the perceived increases in holding costs. They have seen no evidence that purchasing a 12 month minimum quantity of consumables has contributed to the growth in excess inventory. The Air Force will continue to monitor the policy on the use of a 12 month minimum order quantity for consumable items and finds it a prudent way of doing business consistent with the Public Law 98-369 (Section 2301, Title 10 USC) mandate to buy in quantities resulting in unit costs advantageous to the U.S.

OSD is performing an overall review of EOQ policy.

BUYING SPARES TOO EARLY

Question. In 1986 the General Accounting Office reported that certain DOD activities, especially Air Force logistics centers, have routinely initiated spare parts buys earlier than needed to ensure delivery by the required date. This has resulted in unnecessary holding costs and increased long supply assets, among other things. Apparently, the Air Force has ignored this recommendation for three years. A recent GAO review revealed provisions in the Air Force's 1989 buying instructions for the air logistics centers encouraging early purchases to meet budget obligation goals. Why does the Air Force continue to spend money unnecessarily on early buys?

Answer. The issue of buying early was first highlighted in an August 1986 GAO audit and was again brought up as a potential for reducing funding in fiscal year 1988. In both audits the GAO contended that the Air Force initiates procurement for replenishment spares earlier than needed and that by doing so incurs premature obligations and outlays.

The Air Force and DoD have nonconcurred with the GAO findings in both reports. The GAO continuously determined need dates incorrectly and thus misinterpreted when there is a need to buy. The Air Force begins procurement action in the July and August time frame for the upcoming fiscal year using a March requirements computation. For example, the March 1988 computation was used to execute the fiscal year 1989 requirements. The Air Force begins procurement action approximately two months prior to the beginning of the fiscal year, but only for requirements that compute a deficit within the upcoming appropriated fiscal year. Therefore, we disagree that investments or outlays are made prematurely.

If programs were executed as the GAO would have, procurement actions would be initiated for a given fiscal year from October to September. This would result in the bulk of fiscal year 1989 dollars, for example, initiating appropriately within fiscal year 1989 but not obligating until fiscal year 1990. In order to manage a given fiscal year's appropriation, initiation actions need to be made early enough within the fiscal year of the computed deficit to allow for administrative lead time.

Question. What OSD guidance exists on this issue?

Answer. The DoD stratification process described in DoD Instruction 4140.24, "Requirements Priority and Asset Application for Secondary Items" provides the basic guidance in this area. DoD policy does not authorize or support "buying spares early." As stated in DoD's nonconcurrence with the GAO findings, the preparation or "initiation" of paperwork early by the Air Force has no adverse impact on obligations and outlays, since the need date specified in the documents properly identifies when the materiel is actually needed by the Government.

Question. What is the policy of the Navy and Army on early buying?

Answer. Army policy is that funds are to be applied to Procurement Work Directives only when an item's reorder point is reached. Obligations will not be incurred until the reorder point is reached and contractual requirements have been validated.

Navy policy is that there will not be any early buying of material. Material for wholesale stock and outfittings to meet Material Support Date, and material to support Follow-On stock and outfittings is bought a lead time in advance of the requirements. One problem, however, is that these program dates frequently change; many programs are now being "slipped" as funding issues force stretch outs or cancellations. When a program is slipped after the buy is made, it makes the buy appear to have been started too early. It is not generally economic to cancel the buy and reprocure, so the material is maintained on contract even if it appears for a while as Due In Long Supply.

Question. How do you respond to the observation that emphasis on obligation goals may indicate an overabundance of funding available for spare parts?

Answer. The Department's funding request is based on a requirements computation process that determines which items will be needed in the future and when the items must be delivered to support customer needs. Once the DoD budget has been approved, it is essential that the funds are spent on a timely basis to ensure that materiel arrives in accordance with the need date originally projected in the requirements process. The emphasis on meeting obligation goals is a means to ensure that the contracting process is responsive to the materiel need dates. It is an indication of effective management oversight and control and has nothing to do with an overabundance of funding for spare parts.

ITEM VISIBILITY

Question. In order for an item manager to operate his program effectively, he must know what assets are in the system and where they are physically located. The Committee understands that item managers for the Services have greatly differing visibility of assets, especially at the retail level.

Explain the varying amounts of visibility enjoyed by item managers in the Services and the reasons for the differences.

Answer. For the Navy, all major shore supply sites are linked to the inventory control points via daily Transaction Item Reports. Thus 79 percent of the material stocked ashore is visible to the wholesale Navy managed item manager using the daily reporting system. Mobile stock-funded inventories report selected groups of items on a quarterly basis, and allowance lists for all inventories are maintained with the type commanders and the PSICP, to ensure any possible source of material can be identified to fill high priority requisitions. In addition, Navy retail supply assets ashore for items centrally managed by DLA or GSA are replenished in a manner which ensures excess assets at one activity are used to fill shortfalls at another.

The need to maintain ready, mobile forces around the globe has led directly to development of this ability to identify sources for material to support those forces. The Navy cannot afford to leave ships in port when a material casualty occurs, nor is it easy to cannibalize from ship to ship as might be done with a tank or aircraft.

The emphasis has been, and will continue to be, to find the material wherever it may be.

The Air Force logistics system provides visibility of consumable items at the wholesale level and visibility of equipment and repairable items at both wholesale and retail levels. Equipment items are managed and controlled in the Air Force Equipment Management System (AFEMS) and item managers have visibility of assets stored and in use at Air Force depots and bases, assets in repair facilities and intransit assets. The Air Force Recoverable Assembly Management System (AFRAMS) provides item managers visibility over repairable items stored in depot and base warehouses and intransit. This system provides daily reporting of actions taken by bases and depots that affect asset movement, condition, stock balances, use or requirements. Assets in depot and contractor repair facilities, including base maintenance, are also reported to item managers. The Weapon System Management Information System (WSMIS) alerts item managers of critical parts shortages, thus permitting them to direct movement of repairables between bases to ensure mission readiness.

The Army system is discussed below.

Question. What are OSD and especially the Army doing to increase item visibility at the retail levels?

Answer. The Army is fielding a new retail-level automated system called Standard Army Retail Supply System (SARSS). SARSS will provide asset visibility from the division, through the Corps, to the theater level. At each level, Army will be able to automatically cross level assets between units to meet operational requirements.

Additionally, asset visibility of retail stocks at the wholesale level is being enhanced. The Army is currently developing improvements to the Selected Item Management System—Expanded (SMIS-X). This system provides item managers with vertical visibility of selected high dollar and critical readiness items. Every transaction posted to the retail stock records is automatically transmitted to the wholesale level and mirrored in the Inventory Control Points' data base.

The Army is also developing a prototype supply system with the goal of integrating the retail and wholesale supply levels. Using existing hardware, the Objective Supply System allows the user level to pass requests for items directly to the wholesale level, where an asset visibility file is maintained for the total installation. An automated search of installation assets takes place before any request is passed to the source of supply. During a two month concept demonstration of the Objective Supply System prototype at Fort Hood, $92,000 worth of secondary items were redistributed on the installation. The prototype demonstrates significant potential for streamlining the logistics system, reducing the investment in pipeline assets while maintaining readiness. During continued prototype testing of this system the Army is conducting a cost benefit analysis to determine this program's efficiency.

Question. What are the limiting factors to increasing retail line item visibility in the Army?

Answer. The lack of sufficient automation is an important limiting factor. This will be resolved to a large degree with SARSS, which will be fielded in 1990, and SIMS–X. The Army is currently expanding the number of items managed through this system from 5000 to 26,000.

There are numerous automation challenges to ensuring asset visibility information is timely and accurate. The Army does not want wholesale item managers making redistribution decisions with less than full and complete information. There are also economic factors to be considered when directing worldwide redistribution actions. The current Army course will provide the Army with increased retail asset visibility.

Question. Doesn't the lack of retail level item visibility inhibit managers from knowing of excesses and distributing them to needed locations?

Answer. Yes. The Standard Army Retail Supply System (SARSS) was programmed to address this visibility problem. The Army wants managers to have necessary management information prior to redistributing excess. SARSS will be tested at Fort Bragg, N.C. in January 1990 and extended to USAREUR in April 1990. SARSS lateral as well as vertical asset visibility will enhance the manager's capability to effectively control and redistribute excesses.

WAR RESERVE STOCKS

Question. By Service, what are the war reserve spare parts requirements, and what stocks are on hand or on order to satisfy the requirements?

Answer. Navy—War Reserve Material Requirements (WRMR) are made up of Prepositioned War Reserve Material Requirements (PWRWR) and Other War Reserve Material Requirements (OWRMR). PWRMR is the retail portion of the WRMR which is reserved and positioned at or near the point of planned use, or issued to the user prior to hostilities, to reduce reaction time and assure timely support of a specific force project until replenishment can be effected. OWRMR is the wholesale portion of the WRMR within the Navy wholesale system (i.e., primarily located at Navy Supply Centers and Naval Air Stations) to satisfy follow-on wartime support. Navy war reserve requirements are $2.406 billion, with $0.599 billion on-hand and $0.024 on-order.

Army—Fiscal year 1989 requirements are $2.501 billion, and assets on-hand/due-in are $0.945 billion.

Air Force—Aircraft investment/repairable spare and repair parts have two categories of War Reserve materiel (WRM): War Reserve Spares Kit (WRSK)/Base Level Self Sufficiency Spares (BLSS) and Other War Reserve Materiel (OWRM). WRSK/BLSS are stocks used to transition to wartime operations and to fight for the first 30 days. OWRM assets provide wartime sustainability after WRSK/BLSS stocks are exhausted and until industry mobilizes and achieves wartime production levels.

As of March 1988, the Air Force has $4.5 billion of war reserve stocks on hand and $1.8 billion on order. The war reserve requirement is the result of strong funding between fiscal years 1981–87. This funding, mostly for WRSK/BLSS, has increased tactical forces capability to achieve the sortie requirements for the first 30 days of the war from 55 percent in fiscal year 1981 to 99 percent in fiscal year 1989, and increased airlift forces capability from 56 percent in fiscal year 1981 to 99 percent in fiscal year 1989. This sustainability improvement is all the more impressive since it occurred concurrently with considerable force structure change, approximately $20 billion in modifications, significant price increases, and more items in the inventory.

After little WRSK/BLSS funding in fiscal year 1988, none in fiscal year 1989, and no OWRM funding since fiscal year 1985, sustainability for the first 30 days/plus posture begins a downward trend. Even after a modest investment in WRSK/BLSS of $242 million in fiscal year 1990 and $135 million in fiscal year 1991, the tactical forces capability drops from 99 percent in fiscal year 1989 (based on funding through fiscal year 1987) to 72 percent in fiscal year 1993 (based on limited funding through fiscal year 1991); the airlift force capability decreases from 99 percent to 79 percent for the same period of time. By fiscal year 1991, only 16 percent of the total WRSK/BLSS requirement is funded with a shortfall of over $2 billion, and no OWRM is funded with a $1.6 billion shortfall. These levels provide only 43 percent of the first time WRSK/BLSS requirements for all new acquisitions and no updates to existing kits for four consecutive years. In the meantime, modifications continue, kit mixes change, and WRM withdrawals are up to offset peacetime shortages due to current shortages in depot maintenance accounts.

Question. To what extent does each Service use its wartime stocks to satisfy peacetime demands?

Answer. Army—War reserve stocks may only be issued to meet emergency peacetime operational requirements, specifically issue priority designator (IPD) 01–03, not mission capable supply (NMCS) requisitions; to rotate shelf-life stocks; and only if peacetime funding is available equal to the cost of the stock issued. Immediate action is taken by the materiel manager to replenish stock after issue.

Navy—Navy policy allows war reserve stocks to be issued in peacetime when the following criteria are met:

a. To satisfy high priority requisitions for Forces Afloat.

b. To satisfy high priority requisitions for Shore Based Activities only when work stoppages at industrial or training activities are involved.

c. To rotate limited shelf-life stock such as medical items in order to minimize loss to the government at expiration. The sale of war reserve stocks to satisfy peacetime requirements is encouraged as a means of rotating inventory and replacing obsolete material.

The policy is that when war reserve stocks are issued to satisfy peacetime requirements, the War Reserve Program is reimbursed with peacetime operating funds or material in kind. In fiscal year 1988, $6.4 million in peacetime operating funds were reinvested to satisfy war reserve requirements.

Air Force—Data from the Weapon System Management Information System Readiness Assessment Module (WSMIS–RAM) indicates 201,214 WRSK withdrawals for 18 major aircraft systems in fiscal year 1988. This amounts to an average of 8.6 withdrawals for every 100 flying hours. Current O&M repair and transportation shortfalls have caused increases in cannibalizations, WRSK withdrawals, and other workarounds to maintain readiness and prevent severe drops in mission capable rates. For example, in PACAF, 36 percent of mission capable (MICAP) aircraft in fiscal year 1987 were satisfied from WRSK versus 59 percent in fiscal year 1988. This negative trend will continue as the investment spares shortfalls and continued O&M shortfalls have a combined effect on availability.

Since October 1982, Air Force policy has been to authorize use of WRM for other than wartime usage. The purpose is to improve overall weapon systems readiness and sortie generation capability. The Air Force believes it is better to have more mission aircraft capable of flying to war with limited wartime assets than fewer aircraft capable of flying with wartime assets being saved. In other words, sustainability is being sacrificed to maintain readiness.

Routinely, when repairing aircraft, subsystems or components, if serviceable stocks are not readily available, WRSK withdrawals are done automatically under program control by the standard base supply system (SBSS). The program first searches to issue assets out of serviceable, non-WRM, stocks. Only when there are not available are assets withdrawn and issued from WRSK. However, this is only a short term loan. As assets are repaired and returned, the WRSK shortfall is filled. This fill action becomes more difficult with funding shortfalls in both buy and repair.

Question. How are wartime stock managed differently than peacetime? For example, in kits ready for shipment, or prepositioned, or physically separated.

Answer. Army—War reserve stocks are, as a minimum, administratively earmarked in inventory records. War reserve stocks for established theaters of operation are prepositioned at or near the point or expected consumption. War reserve stocks for forces designated for operations in non-established theaters are stored at the wholesale level.

Some selected stocks are physically earmarked and separated at storage location when required reaction times dictate. This earmarking may consist of separated storage, packed and marked or, in the most extreme case, rigged for airdrop delivery.

Navy—The vast majority of Navy War Required Material stored ashore is protected on stock records but is not physically separated from peacetime stocks or stored in kits. This system ensures that material is available to meet high priority Fleet requirements and that stock is rotated. Some material, however, is staged for rapid shipment, for example, Naval Reserve Construction Battalion and Reserve Cargo Handling Battalion material. Additionally, certain war required material is Prepositioned Afloat, e.g., on Combat Stores Ships. This material is physically separated from the wholesale supply system in order to support forward deployed forces.

Air Force—WRSK is an air transportable 30 day spare parts package that deploys with the unit. BLSS is prepositioned for those units that fight in place. These WRSK/BLSS assets are not commingled with peacetime operating stock. They are stored and maintained by the unit they support. For example, WRSK is stored in mobility bins or on pallets in segregated storage ready for marshalling and movement. Items requiring buildup may be stored in the appropriate maintenance shop to facilitate rapid buildup and meet mobility response times.

DIMINISHING MANUFACTURING SOURCE PROGRAM

Question. The diminishing manufacturing source program is a DoD effort to minimize the impact when sole source defense manufacturers stop making parts. One option available to item managers under the program is to make a life-of-type buy. A GAO review indicates that the Defense Logistics Agency has almost $300 million of electronic parts on hand purchased under life-of-type buys. Of the total, 3,500 items valued at $225 million have stock on hand representing ten or more years demand, including 1,240 items valued at $65 million with more than 50 years of supply on hand.

The worst case example is of a die used on the F-14A aircraft. There are more than 52,000 of the dies on hand, valued at $2.4 million, which represent a 13,157 year supply.

Briefly explain the diminishing manufacturing source program and how candidate parts are identified and managed.

Answer. Candidate parts are identified from discontinuance notices submitted to inventory managers by manufacturers. Checks are made for existing inventory and for alternate sources or substitute items. This research is done before a life-of-type (LOT) buy is made. Of the 8500 items referred to the Defense Electronic Supply Center between fiscal year 1985 and fiscal year 1988, 54 percent were resolved by alternate sources or substitute items.

Question. Is an analysis performed which considers holding costs and other factors of a life-of-type buy compared to costs associated with developing a new source at a later date?

Answer. We do consider the costs involved with alternative solutions, but forecasting future requirements is subject to error. In some cases the Defense Electronic Supply Center is making a limited buy with the intention of using another alternative as a final solution.

In the world of microelectronics, new source development is not a viable option. There are no "mom and pop" semiconductor manufacturers and the multi-million dollar start-up costs for a single production line makes it unfeasible to develop new ones.

However, in the solution selection process, holding costs and other factors of a LOT buy are considered along with the costs of other solutions such as emulation, engineering retrofit, and redesign, in an attempt to arrive at the most cost-effective and feasible solution.

Question. Wouldn't parts considered for the diminishing manufacturing source program be good candidates for reverse engineering?

Answer. Reverse Engineering is an expensive solution when compared to life-of-type buys or finding an alternate item. However, it is sometimes used.

At times, the Services have made LOT buys because the time constraints imposed by semiconductor manufacturers precluded any other solution (after determining that there is no alternate source or substitute part). As the DMS problem and its implications became more obvious, different solutions began to be explored. Recently VHDL (very high speed integrated circuits (VHISC) coupled with a hardware descriptive language (HDL)), reliable emulation, and retrofit engineering have been refined, tested, and proven viable, reliable, cost effective, and can compete with LOT buys.

Question. Did the Navy consider buying spare parts for the MK-46 torpedo under the diminishing manufacturing source program before the production line is shut down?

Answer. No supply system spare parts life-of-type (LOT) buys were made under the Diminishing Manufacturing Sources/Material Shortages (DMS/MS) program for the MK-46. However, the program office for the MK-46 procured some parts, consisting mostly of o-rings, during the final production run. This contract has expired, however, there is currently a Foreign Military Sales (FMS) production contract. Honeywell, the MK-46 prime manufacturer, has recommended the Navy buy spares under the DMS/MS programs for the FMS contract. The Navy is considering if a LOT buy is cost effective.

RAPID ACQUISITION OF MANUFACTURED PARTS

Question. The Navy's Rapid Acquisition of Manufactured Parts Program (RAMP) and the Army's Rapid Acquisition of Spare Parts (RASP) Program are new initiatives designed to reduce procurement lead times.

Briefly describe the two programs including data on their costs, benefits and status.

Answer. The Navy's RAMP and the Army's RASP are essentially the same. The Navy was given the lead for this research and development (R&D) effort that will integrate emerging manufacturing and production administrative technologies in a test bed environment for a prototype demonstration in support of low volume production of spare parts. The Army's participation in the RAMP program is known as RASP. The two programs' basic objective is to manufacture difficult-to-obtain parts critical to fleet support operations in a responsive, cost effective, and automated manner. Two general categories of parts are targeted for RAMP manufacture under the initial operation: Small Machined Parts (SMP) and Printed Wiring Assemblies (PWA). After successful prototype demonstration and production in the test bed, the Navy will implement the RAMP cells at depot level activities.

In fiscal year 1989 HASC, HAC, and SAC directed the Navy to fully fund the current RAMP contract with the South Carolina Research Authority (SCRA) and to develop a strategic implementation plan for the RAMP program for FY 1990 and beyond. The formal Strategic Plan has been forwarded by SECNAV to the Committees on March 16, 1989. The Plan calls for installation of RAMP cells into the following Navy activities:

Naval Aviation Depot, Cherry Point: SMP, Sep., 1991. Naval Avionics Center, Indianapolis: PWA, Mar., 1992.

The Strategic Plan also contains an additional objective to share this technology with other DoD activities, and transfer the technology to U.S. industry to broaden our industrial base.

The detailed design for the PWA and the SMP cells is completed. The key to the RAMP system is use of technical data in computer interpretable format to drive automated production control, inventory management, processes planning, shop floor scheduling and manufacturing of a quality part.

System test for the RAMP SMP cell is scheduled to begin this summer. PWA system test is scheduled to begin January 1990. Following system test the cells will operate in a pre-production mode, while additional equipment is installed, integrated and tested to bring the cells up to full initial operating configuration. Upon successful completion of all tests, the cells will be transferred to Navy operation.

The total cost of the RAMP program is approximately $126 million, which covers proof of concept demonstrations starting in fiscal year 1983, through implementation of the RAMP cells into Navy activities in fiscal year 1993. The current contract for detailed design, development, integration, test, and implementation at the three activities is for $74 million. Cost modeling has shown that the pay back for installing RAMP into Navy activities is less than two years for each site. In addition to an attractive pay back period, RAMP will improve delivery of critical spare parts to the Fleet by reducing average production lead time from 300 to 30 days.

The Army is participating in the RAMP program by identifying 30–50 small mechanical parts that would lend themselves to the Navy's validation effort with the objective of determining the desirability of transferring this technology to an Army facility. The Army is calling this validation effort and their participation in the program RASP.

Upon successful prototype completion by the Navy, the Army will make a decision on whether or not to establish similar facilities and implement the technology in Army Depots.

The initial cost to the Army for parts manufactured in the Navy RAMP test bed environment is minimal and includes only the cost of raw materials and creation of the requisite electronic technical product data descriptions (i.e., encoding of the computer). Upon proof of concept, and assuming the Army desires to establish the necessary facilities, the cost to build and equip an automated manufacturing facility of this type is estimated to be $6–8 million.

The Army validation and analysis of RAMP is currently proceeding on schedule according to the established milestones. The Technical Data Packages (TDPs) for the Army items will be delivered to the Navy engineers for their review and analysis in June 1989. The full Navy test bed facility is expected to be operational in April 1990, with the first delivery of Army parts anticipated in June 1990. The Army decision regarding establishing and equipping their Depots with this new technology is expected to be made early in FY 1991.

Successful implementation of the RAMP and RASP programs will result in significant benefits to the Service(s) and industry. Benefits include:

a. Reduced manufacturing lead times;
b. Reduced prices for reliable, quality parts;

c. Complete electronic product data descriptions that can be easily transferred to similar facilities for production, if necessary (i.e., built-in redundancy);

d. Establishment of the capability for replication of out-of-production and out-of-stock parts in small lots;

e. Increased ability to maintain the readiness and sustainability of our military forces; and

f. Decreased life cycle costs for maintaining spare parts stockage via decreased economic order quantities.

Question. Does the Air Force have a similar effort under way or planned?

Answer. The Air Force project most closely related to RAMP and RASP is an effort named GENESYS, which is a module of the Spare Parts Production and Reprocurement Support System (SPARES). SPARES itself comes under the umbrella of the repair technology (REPTECH) program.

The objective of the SPARES program is to define the technical data required to produce spare parts, to examine the methods used by the Air Force for procuring and manufacturing spare parts, and through the application of technology, to improve the spare parts reprocurement and internal manufacturing processes. It will use a phased system development approach which will first employ low-risk, off-the-shelf technology to field usable prototypes, then will apply higher-risk advanced technology three to five years into the future with a view to Air Force-wide implementation.

The first step will be to extract information from the historical records of an Air Logistics Center (ALC) to identify a family of subsystems and components to be produced by the SPARES GENESYS Module. Preliminary and advanced prototypes of the Technical Data Modules will then be designed and built to help ALCs prepare the Technical Data Packages (TDP) used to competitively procure parts. Finally, preliminary and advanced prototypes of the GENESYS Module will be designed and built.

The goal of the GENESYS Module is to provide responsive efficient production of manufactured parts subject to unpredictable demand. This module is very similar to the Navy RAMP program and the Air Force is using technology developed RAMP to leverage their GENESYS implementation. The major functions of GENESYS are:

Resource Management, which will screen work requests, determine material and engineering data requirements, prepare preliminary production schedules, and trigger material requisitions and requests for additional engineering data.

Integrated Production Planning, which will generate the parts data necessary for production (if not already available), produce the programs needed to control tools, and develop final production schedules.

Material Substitution, which will perform engineering analyses of parts and match the material property requirements to a data base to identify candidates for substitution with unavailable materials.

Production Cell Activity, which will produce parts with an integrated automated manufacturing cell optimized to operate in minimum time with limited manpower, and perform the necessary quality control.

A statement of work is in the final stages of review to contract for development of SPARES.

Question. What is the OSD position or guidance on this issue?

Answer. OSD totally supports these initiatives by the Services. The Navy has the lead for the R&D effort in RAMP and is actively working with the other Services to move the technology into other programs, such as RASP and SPARES. The Defense Logistics Agency is also participating in the effort.

The common denominator of these efforts is the modernization of DoD's industrial capability using state of the art manufacturing technology with the intent of transferring this technology to the private sector. The RAMP Program's long range strategic plan calls for the transition of the technology in a proactive manner to private industry. This will facilitate DoD's role in strengthening and modernizing the industrial base by refining digital technical data standards, demonstrating the cost effectiveness of Computer Integrated Manufacturing (CIM) methods, and providing alternatives to diminishing manufacturing sources while strengthening our ability to mobilize.

Question. What potential applications are foreseen?

Answer. By supporting Service R&D initiatives like RAMP and Service industrial modernization programs like GENESYS and RASP, OSD can accelerate the development of acquisition and production streamlining methodologies to facilitate DoD's objective to keep a competitive industrial base in the United States.

Implementation of concepts like the Product Data Exchange Specification (PDES) which will standardize the technical data in computer interpretable format, has the potential to significantly benefit total life cycle support of a product from design to disposal. The Navy's RAMP Program is the first implementation of PDES to support an automated manufacturing capability. The RAMP software has also been designed to be modular for ease of transition to private industry and other DoD activities. The emphasis is on maximizing the use of Commercial Off the Shelf (COTS) software and hardware readily available in the public domain. Software developed by the Navy to integrate commercially available software and hardware will be Government owned and also in the public domain. The use of modular design and public domain software and hardware is very attractive to both DoD and industry as a mechanism for accelerating modernization while expanding the competitiveness of the existing industrial base.

All of the military services have been experiencing problems in providing spare and repair parts for increasingly complex and varied systems. These problems stem from rapid changes in technology, rapid obsolescence of systems, diminishing domestic manufacturing sources and data availability. This has resulted in increasing procurement lead times, high cost parts, inventory growth and difficulties in locating sources for many parts. Implementation of the new techniques and technology within RAMP will be utilized to provide a "spare parts on demand" capability that will improve logistics support throughout the life cycle of a weapon system.

REIMBURSEMENTS TO THE AIR FORCE FOR SALES OF AIRCRAFT SPARES

Question. For the past several years, including FY 1990, the Air Force has offset its annual funding request for aircraft replenishment spares by $170 million, representing reimbursable financing for the annual sales of aircraft spares to foreign countries and other military services. Also, for the past several years, including FY 1990, the Air Force has budgeted annual aircraft spares requirements valued at about $1 billion for sales to foreign countries and other services.

How does the Air Force account for the substantial variance between its annual budgeted aircraft spares requirements for sales to FMS and non-FMS customers valued at about $1 billion and the $170 million reimbursable financing offset for these sales made to the Air Force's annual procurement funding request for aircraft replenishment spares?

Answer. The gross requirement for spare parts in support of FMS and other service/agency requirements is the $1 billion referred to in the question. This requirement is offset by assets on-hand and assets on-order before we compute a deficit (the amount budgeted for). We do not budget for the $1 billion referred to in the question, because it is for the most part, already available or on-order. The $170 million is the amount of earnings, historically, that have been returned to aircraft spares as a result of sales to these customers. These sales can be excess (long supply) items that the Air Force had no current requirement for or can be items that we ship from inventory and must be replaced.

Question. What is the Air Force's rationale for interim financing of 12/17ths of the annual budgeted requirements for aircraft spares sales to FMS customers? Do the Army and Navy have similar interim financing arrangements with FMS customers? What is DoD's position on interim financing of FMS sales?

Answer. None of the Services interim finance FMS sales. When the FMS customer decides that he would like to set up a Cooperative Logistics Supply Support Agreement (CLSSA), the country "buys" into the DoD supply system, with the assurance of being treated just like DoD customers. To make sure that they pay their fair share of being part of the DoD supply system, they pay 5/17ths of the cost of acquiring additional spares to support their requirements. These spares are held by the Services until they are required by the user, and they can be used by the Services while they wait for an FMS user to generate a demand for the part.

The arrangement provides for the execution of two Foreign Military Sales Orders (FMSOs) called FMSO I and FMSO II cases. A FMSO I case has a Part A and Part B. Part A represents a five month stockage level (5/17) which the FMS customer pays for upon approval of the case. Part B represents the requirements for a twelve month period (12/17) to support the end item/system, which enables procurement on an on order dependable undertaking basis. The country's dollar obligation includes the value of both Part A and Part B.

A FMSO II case provides the funds to pay for the FMSO I, Part B. Both cases must be executed in order for CLSSA requirements to be anticipated and satisfied.

Quarterly payments are received on the FMSO cases in incremental amounts to cover payment of materiel, progress payments, contractor hold backs, and U.S. Government administrative and service charges, ninety days in advance of planned disbursement.

Question. What is the disposition of the annual advance deposit that the Air Force receives from FMS customers for future negotiated aircraft spares sales? Is the advance deposit used to finance purchases of aircraft spares for FMS sales?

Answer. The advance deposit is used to "pay the bill" as a result of using a part and returning a repairable. A credit against the unit price of the part is given to the account for each country and a debit of the full price of the item is taken against the account when a serviceable item is shipped to the country. The advance deposit is only used to buy spares if it is in the correct case, and then only for designated purposes.

Question. For FY's 1985–1987 how do the Air Force's budgeted requirements for FMS and non-FMS aircraft spares sales compare with actual sales? Also, can the Air Force provide an accounting for the proceeds from the FY's 1985–1987 sales?

Answer. The total Budget Program 18 (Reimbursable) funding authority received and spent for FY's 1985–1987 are as follows:

	1985	1986	1987
Received	$204,400,000	$209,950,000	$183,350,000
Spent	204,261,614	109,800,681	182,860,786

The estimate for the BP18 offset to the spares budget is based on our reimbursable sales and deliveries for the most current completed year available, and the year-to-date data available for the current year. We have no advance order data available for the out years.

TWENTY-TWO YEAR SUPPLY OF BUBONIC PLAGUE VACCINE

Question. In a system with five million items there will always be some idiosyncrasies. However, some of the situations which have come to the attention of the Committee defy reason and make one wonder if anybody with any common sense has looked into them.

For example, recently the Defense Logistics Agency had a 22-year supply of bubonic plague vaccine on hand valued at $4.4 million. The DLA continued to buy 66,000 units annually from the sole source for about $800,000 even though demand was only 17,000 units. Because of short shelf-life, about 75 percent of the stock was disposed of annually.

Has this situation been remedied in the past few months?

Answer. The DLA does not now and never did have a 22-year supply of bubonic plague vaccine on hand. This erroneous figure first came up during a GAO review. The DLA conducted research and discovered that the monthly destruction report provided by the contractor was not being reflected correctly in the inventory record. That condition was corrected promptly, but unfortunately the incorrect figure had already been made public. The actual supply is approximately 2-to-3 years' worth of vaccine. To appreciate the situation DLA must contend with regarding bubonic plague vaccine, it is necessary to understand that there is only one producer in the free world. In order to maintain this single active production base, DLA is required to buy more vaccine than is used. DLA stocks about a 4-month supply of packaged ready-for-issue vaccine in its depots, and the contractor maintains the remaining stocks in his plant. As the 18-month shelf life of the vaccine expires, about 75 percent of the stock must inevitably be disposed of.

Question. How and why is the DoD using 17,000 units of bubonic plague vaccine annually?

Answer. The units are used to immunize troops who would be expected to deploy overseas rapidly. The dosage is normally three shots plus booster shots on a periodic basis.

[CLERK'S NOTE.—End of questions submitted for the record.]

THURSDAY, MAY 11, 1989.

FISCAL YEAR 1989 ARMY REPROGRAMMINGS

WITNESS

MAJOR GENERAL MERLE FREITAG, DIRECTOR OF THE ARMY BUDGET, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR FINANCIAL MANAGEMENT

M-1 TANK PROCUREMENT AND MODIFICATION

REPROGRAMMING NO. 89-6PA

INTRODUCTION

Mr. HEFNER. The Committee will come to order.

The Committee will now consider reprogramming FY89-6PA, which proposes to reprogram $90 million from the fiscal year 1988 M-60 tank modification program to the M-1 modification and procurement program. The stated purpose of this reprogramming is to initiate four modifications to the M-1 tank and to procure an additional 29 tanks. The reprogramming also proposes to increase the fiscal year 1989 tank procurement quantity by ten tanks, to a total of 555 tanks.

The witness appearing in support of this request is Major General Merle Freitag, Director of Army Budget. General Freitag, your prepared statement and the reprogramming document will be placed in the record.

Please summarize your statement and we will proceed with the questions.

SUMMARY STATEMENT OF GENERAL FREITAG

General FREITAG. Thank you, Mr. Chairman.

As you have indicated, the Army's requested reprogramming action will allow us to take advantage of favorable contract price terms in the fiscal year 1989 M-1 procurement and allow us to procure an additional ten tanks without any increased required resources.

In addition, making the best use of the money available from the M-60 line as approved in the 1988 Authorization and Appropriations Acts will allow us to put an additional 29 M1A1 tanks in the field and put $30 million to provide for fabrication of modifications to be done for safety and operational improvements at Anniston Army Depot.

The reprogramming we view as reasonable and balanced and look forward to answering questions.

[The statement of General Freitag and the reprogramming document follows:]

STATEMENT OF GENERAL FREITAG

Mr. Chairman and Members of the Subcommittee: The action before you proposes to reprogram $90.0 million in fiscal year 1988 funds within the Weapons and Tracked Combat Vehicles, Army, appropriation to comply with guidance in the 1989 DoD Authorization Act and further proposes to increase the authorized quantity of M1A1 tanks procured in fiscal year 1989. Prior approval is required as this is an item of special Congressional interest to the Congress.

This reprogramming will result in the procurement of 29 additional M1A1 tanks for the Army as part of the fiscal year 1988 buy and 10 additional M1A1 tanks in fiscal year 1989 as a result of contract savings in the 1989 procurement program.

This reprogramming will also provide the means by which additional modification kits may be fabricated at the Anniston Army Depot for ultimate application to previously procured Abrams tanks. Modifications to be added to the Abrams tank include such safety enhancements as long-term battery cable fix, commander's hand guard and turret circuit boards and operational improvements to the on-board vehicle heater.

Funding for the fiscal year 1988 reprogramming is available within the M60 modification program as a result of the Army's decision to terminate future enhancements to this vehicle. Procurement of the additional tanks in fiscal year 1989 is consistent with existing direction to utilize program savings within the scope of authorized programs provided the inventory objective is not exceeded.

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Page 1 of 2 Pages

REPROGRAMING ACTION

Appropriation Account Title: Procurement, Weapons and Tracked Combat Vehicles, Army	DoD Serial Number: *FY 89-6 PA*
Component Serial Number: FY 89-5PA	(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

PRIOR APPROVAL ACTION

This reprograming action is submitted for prior approval because it proposes a transfer of funds within the PWTCV,A appropriation to procure additional M-1 tanks in FY 1988 and FY 1989. The increase is for a higher priority item, based on unforeseen Military requirements, than the items for which funds were originally appropriated. These actions meet all administrative and legal requirements of the Congress, and have not been previously denied by the Congress. This reprograming is reflected in the FY 1988 and FY 1989 columns of the FY 1990/1991 biennial budget.

REPROGRAMING INCREASE:

Procurement, Weapons and Tracked Combat Vehicles, Army, 88/90

Budget Activity 1: Tracked Combat Vehicles

a	b	c	d	e	f	g	h	i
Abrams Tank Series(MYP)	660	1,633,950	660	1,633,950	+29	+60,000	689	1,693,950
Less Adv Proc(PY)		-182,800		-182,800		-		-182,800
		1,451,150		1,451,150		+60,000		1,511,150

EXPLANATION: These funds procure 29 additional tanks under the favorable terms of current multiyear contracts and maintain the overall tempo of modernization of the armored force in the active and reserve component force structure. This action is required to implement Section 1212 of the FY 1989 DoD Authorization Act.

a	b	c	d	e	f	g	h	i
Tank, M1 Series (Mod)	xx	30,200	xx	30,200	xx	+30,000	xx	60,200

EXPLANATION: These funds provide for continued application of safety and operational improvements to previously procured Abrams tanks. Specific modifications include: Muzzle reference sensor ($1.4 million), turret network safety ($26.9 million), long term battery ($1.2 million), and commander's hand guard ($.5 million). These modifications will be performed at the Anniston Army Depot.

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Page 2 of 2 Pages

REPROGRAMING ACTION

Appropriation Account Title: Procurement, Weapons and Tracked Combat Vehicles, Army	**DoD Serial Number:** FY 89-6 PA

Component Serial Number: FY 89-5PA

(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i
PRIOR APPROVAL ACTION								
Procurement, Weapons and Tracked Combat Vehicles, Army, 89/91								
Budget Activity 1: Tracked Combat Vehicles								
Abrams Tank Series(MYP)	545	1,361,672	545	1,361,672	+10	-	555	1,361,672
Less Adv Proc(PY)		-235,072		-235,072		-		-235,072
		1,126,600		1,126,600		-		1,126,600
EXPLANATION: Sufficient funding is available as a result of contract savings to procure ten additional tanks in FY 1989 under the favorable terms of current existing multiyear contracts.								
Total Reprograming Increase						+90,000		
REPROGRAMING DECREASE:								
Procurement, Weapons and Tracked Combat Vehicles, Army 88/90								
Budget Activity 1: Tracked Combat Vehicles								
Tank, C6t, FT, 105MM Gun, M60 Ser (Mod) (MYP)	xx	90,000	xx	90,000	xx	-90,000	-	-
EXPLANATION: Funds are available because the Army has terminated this program to finance higher priority requirements. Reinstatement of funds will not be required.								
Total Reprograming Decrease						-90,000		

Approved (Signature and Date)

William H. Taft

William H. Taft, IV
Deputy Secretary of Defense

24 FEB 1989

DD FORM 1415-1
1 Mar 83

UNCLASSIFIED
CLASSIFICATION

Replaces DD Form 1415-1, 1 Jul 79, which is obsolete.

FISCAL YEAR 1989 LANGUAGE

Mr. **Hefner**. Section 1212(b)(3) of the fiscal year 1989 Authorization Act requires that $30 million of the $90 million involved in the reprogramming shall be used for "facilitization of Anniston Army Depot and initiation of the retrograde and modification programs for M-1 tanks."

The intention was that the funds be used for a program to put 120 millimeter guns on all M-1 tanks. This reprogramming funds modifications and production, not facilitization. How do you explain this apparent failure to follow the requirements of law?

General **Freitag**. The Army's overall review of the M-1 120 millimeter gun program proved to be unaffordable. We could not go back and retrofit the entire fleet. Therefore, we have focused our attention on trying to make those operational and safety improvements of the M-1 program utilizing the work force at Anniston to fabricate those modifications as required.

Mr. **Hefner**. That is still the law.

General **Freitag**. I understand, sir.

We have looked at the program and just cannot, with the resources available, afford to be able to do it. The cost of upgunning from the 105 millimeter to the 120 millimeter is not within our capability. We believe that with the planned heavy force modernization program that we will have the mix of tanks that are required on the battlefield for the future.

Mr. **Hefner**. Do you propose to change the law?

General **Freitag**. Sir, we will have to work with your staff in order to come up with the proper definition, but the intent, as we understood it from the Congress, was to provide some modification to the M-1 tank at the Anniston Depot.

We plan to do that, but the extent of the modification will be less than originally intended, the 120 millimeter gun being the most important portion of that.

There will be sufficient work loan with the $30 million identified for fabrication of modification kits at Anniston to accomplish badly needed modifications to the M-1 for crew safety and for operational improvements.

Mr. **Hefner**. Something will have to take place because we can't arbitrarily change the law because we want to do something else. That would really cause us a problem. So we will have to do it according to the law and maybe the law will have to be changed.

General **Freitag**. I understand, sir.

Mr. **Hefner**. We have questions on fiscal year 1988 procurement for the record.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

M1 TANK PROCUREMENT FISCAL YEAR 1988

Question. The reprogramming proposes to use $60 million to procure an additional 29 M1 tanks in FY 1988. How can this be accommodated within the current multiyear contract?

Answer. The current chassis multiyear contract provides for delivery of a specified quantity of tanks in each of four basic lots. The additional 29 tanks are to be a part of Lot 4 of the contract. This lot has a fixed quantity of 720 tanks. Given approval of the reprogramming, 44 of the 720 tanks in Lot 4 will be funded with FY 1988 appropriated funds, while 676 of the 720 tanks in Lot 4 will be funded with FY 1989 appropriated funds. Absent this reprogramming, only 15 of the 720 tanks in Lot 4 would be funded with FY 1988 funds, 676 of the 720 tanks would be funded with FY 1989 appropriated funds, and the residual tanks to completely fund the lot would require FY 1990 appropriated funds.

Question. The 660 tanks already funded in fiscal year 1988 have a unit cost of $2.48 million. How can you buy the additional tanks in this reprogramming at a unit cost of $2.07 million?

Answer. The current year unit cost for an FY 1988 tank is $2.37 million. When the additional 29 tanks are added to the FY 1988 program, the only additional requirement to be funded is the hardware cost of the additional tanks.

Question. What would be the impact of not approving the additional tank procurement and using the $60 million for something else, like offsetting a portion of the pending supplemental?

Answer. If the additional 29 tanks are not procured in the FY 1988 program, an additional quantity of tanks, above the President's Budget, would have to be resourced to maintain a full twelve-month funded delivery period for the fiscal year 1990 program.

[CLERK'S NOTE.—End of questions submitted for the record.]

FISCAL YEAR 1989 TANK PROCUREMENT

Mr. HEFNER. As recently as last August, the Army told the committee that $1,131,100,000 would be required to procure the 545 tanks in the budget. The August estimate reflected $14.1 million in cost savings from award of the track contract and numerous other changes. Congress appropriated $1,126,600,000, $5.5 million below the up-to-date Army estimate. Why, just six months later, are we able to procure 555 tanks with less than what was said to be required to buy 545 tanks? We are not criticizing you for saving money, but it is a little bit unusual.

General FREITAG. Yes, sir, it is.

As you know, we submit our budget requirements early in the life cycle of this particular contract and as we progressed through the year, additional information became available to us in the November-December time frame, which we began working with immediately at that point to refine our estimates.

Mr. HEFNER. I thought these were fixed-price contracts. We should have known, shouldn't we?

General FREITAG. There was a portion of the contract, as I understand it, that had to do with the track to be used and within the government-furnished equipment, the track to be used could have been the more expensive Diehl track——

Mr. HEFNER. The August estimate reflected that change.

General FREITAG. My understanding, the budget submittal included $30 million for the Diehl track which has not been adjusted to reflect the T–158 track with a $14.1 million cost avoidance.

As a result, we have made the adjustment and are now able to procure 10 additional tanks without any additional money.

Mr. **Hefner**. According to our sheets that was already factored in.

General **Freitag**. Not according to my records, sir.

May I provide the information for the record?

Mr. **Hefner**. All right.

[The information follows:]

Previous estimates were based on existing assumptions and data that were valid at that time. The subsequent program dynamics affecting the original FY 1989 President's Budget submittal are delineated as follows:

The budget submittal included $30.0 million for Diehl track. The contract award for Diehl track was delayed as a result of protest and the less costly FMC T158 track ($14.1 cost avoidance) was procured.

Other program changes resulted in an additional $15.8 million in cost avoidance.

As a result, a total cost avoidance of $29.9 million was available which offset the reduction of $5.5 million to the FY 1989 President's budget request and resulted in a surplus of $24.4 million to be used to procure 10 additional FY 1989 tanks.

M-1 TANK MODIFICATION

Mr. **Hefner**. The reprogramming document, dated February 24, 1989, states that the $30 million will be used for muzzle reference sensor, turrent safety network, long-term battery, and commanders hand guard. Responses to questions for the record, dated April 11, 1989, indicate that this program has been significantly changed.

The muzzle reference sensor has been eliminated and "heater air flow" has been substituted. The cost of the turret network safety has gone from $26.9 million to $20.6 million. The cost of the long-term battery has increased from $1.2 million to $7.7 million.

Can you explain these changes?

General **Freitag**. Yes, sir. I believe I can.

First, the insert for the record, which was provided as part of General Chen's previous testimony, did indicate in draft form the numbers which you have just cited.

Those numbers were still being worked at that time.

The numbers which we have sent to you in the reprogramming are our best estimate at this time. They have not yet been refined. The insert for the record is, in fact, being refined as we speak.

Mr. **Hefner**. If such changes have been made in just two months, what confidence do we have that there will be no further changes before the program is executed? Why are your cost estimates so bad?

General **Freitag**. Sir, without full knowledge of the cost development of those particular estimates, there are a series, as you can imagine, of both operational and safety modifications which we would like to make to the program.

These are only a few of the many changes which are going to eventually be applied to the M-1. Our estimates at the time we prepared this reprogramming in February were the best that we had available at that time. The intent remains the same, to make the changes to the tank which will enable our soldiers to operate more safely, more effectively, and more efficiently.

The commanders hand guard, for example, should prevent injury. The long-term battery cable fix will give us maintainability savings downstream. The costing I will have to report back separately and I will provide that for the record.

[The information follows:]

When first proposed, this reprogramming was designed to resource fabrication of hardware for selected modifications to the Abrams tank. The four modifications are as indicated in the exhibits for Procurement of Weapons and Tracked Combat Vehicles of the FY90/91 President's Budget. The specific exhibit of interest is the P-40 for Tank, M1 Series (MOD), P-1 Item Number 15 of the budget request. Inclusion of the muzzle reference sensor in the reprogramming document dated February 24, 1989 is an error and is not in agreement with the President's Budget.

The original estimates for these modifications reflect engineering estimates based on similar type work. The work proposals themselves were provided to personnel at the Anniston Depot for subsequent review, and the April estimates were based on this initial review of materials and labor hours required to fabricate the kits. Final estimates will be developed before the end of the 3d quarter of fiscal year 1989. The current estimate of the total costs of the original four programs proposed by this reprogramming is as follows:

	Million
Heater air flow	$1.4
Turret network safety	10.7
Long-term battery upgrade	7.6
Commander's hand guard	0.2
Subtotal	19.9

Mr. HEFNER. If my math is correct, we had $30 million for this entire program; right?

General FREITAG. That is correct, sir.

Mr. HEFNER. Are we still within the $30 million?

General FREITAG. Yes, sir; we are.

Mr. HEFNER.You don't have a price for that heater air flow. What is that?

General FREITAG. We estimate the cost of the heater air flow to be a million and a half, sir. And that is a portion of the decrease in the turret network safety which had previously been estimated at about $26 million.

Mr. HEFNER. Well, your estimates sure change pretty fast, don't they?

General FREITAG. Yes, sir.

Mr. HEFNER. What is the priority of these modifications compared to other M-1 modifications? Would the Army be proposing them even if Congress had not directed $30 million worth of work to the Anniston Army Depot?

General FREITAG. Sir, these are modifications which the Army would like to accomplish anyhow. There are several different ways to accomplish the modifications.

The Anniston solution was a perfectly logical one from our standpoint.

In terms of the overall priority, these are among our uppermost priority for reliability and safety and that is why we would like the approval of the reprogramming at this time.

Mr. HEFNER. Mr. AuCoin, do you have any questions?

Mr. AUCOIN. Not at the moment.

ARMY COMPUTERS

REPROGRAMMING NO. 89-11PA

INTRODUCTION

Mr. HEFNER. The Committee will now consider reprogramming FY89-11PA, which proposes to realign $20 million of fiscal year

1987 Other Procurement, Army funds from the Reserves to active Army computer programs. The stated purpose of this reprogramming is to accelerate upgrading of computer equipment in the Army Standard Information Management System, ASIMS, which is a CONUS-wide computer network supporting the administrative functions of Army bases such as pay, personnel, logistics, and finance.

The witness appearing in support of this request is Major General Merle Freitag, who is the Army's Director of Budget. Your prepared statement and the reprogramming document will be placed in the record.

Please summarize your statement and we will proceed with the questions.

SUMMARY STATEMENT OF GENERAL FREITAG

General **Freitag**. It is a pleasure to be here.

Essentially what we are asking for is the opportunity to remove what has been termed as a fence around $20 million of fiscal year 1987 OPA money which was designated in language to be spent in support of reserve forces automation.

That was part of an older program called CAMIS. This program has been replaced by RCAS and the RCAS program is not yet ready to spend the money of the nature that we are talking about here. So we request the committee to allow the removal of that fence and to apply the $20 million to the requirement of the program we now call ASIMS, which was in prior years called VIABLE.

This reprogramming, if supported by the committee, will allow us three major upgrades and across the region will give us added support to process both financial and personnel logistical data in support of all of our installations. Without this reprogramming, we will have significant problems in meeting some of the reporting requirements regarding financial reporting. Some of the programs include entry design, and STARCIPS program, and personnel, and the opportunity to improve our support of the field is here and we would like to take advantage of it with the addition of this $20 million.

[The statement of General Freitag and the reprogramming document follows:]

Statement of General Freitag

Mr. Chairman and Members of the Subcommittee: The action before you requests relief from Congressional direction concerning $20.0 million in fiscal year 1987 funds in the Other Procurement, Army appropriation. Funds contained on the Vertical Installation Automation Baseline (VIABLE) budget line would be used to upgrade the regional data centers to the Army Standard Information Management System (ASIMS) configuration. These funds had been set aside for reserve forces automation but are not executable until fiscal year 1992. This action would replace funds previously programmed for the fiscal year 1990/1991 budget but eliminated pending consideration of this action. This action is submitted for prior approval since reserve forces automation is an item of special interest to Congress in fiscal year 1989.

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Page 1 of 1 Pages

REPROGRAMING ACTION

Appropriation Account Title: Other Procurement, Army, 87/89	DoD Serial Number: FY 89-11 PA

Component Serial Number: FY 89-7 PA	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	(Amounts in Thousands of Dollars)							
LINE ITEM	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

PRIOR APPROVAL ACTION

This action proposes to realign $20.0 million within the VIABLE program, and is submitted for prior approval since the Reserve Forces Automation is an item of special interest to the Congress. The Reserve Component Automation System (RCAS) program cannot award a procurement contract until FY 1993, by which time, the FY 1987 funds would have expired. These funds will be used to accelerate upgrading of computer equipment to the Standard Army Information Management System (SAIMS) configuration. This increase is for a higher priority program, based upon an unforseen military requirement, than the item for which the funds were originally appropriated. This action meets all the administrative and legal requirements of the Congress and has not been denied by the Congress. This action is reflected in the FY 1990/1991 biennial budget.

REPROGRAMING INCREASE/DECREASE

Budget Activity 2: Communications and Electronics Equipment

a	b	c	d	e	f	g	h	i
Vertical Installation Automation Baseline VIABLE-BASOPS	-	41,800	-	41,200	-	-	-	41,200
(Reserve Forces Automation)	-	(20,000)	-	(20,000)	-	(-20,000)	-	(-)

Explanation: This action reapplies the $20.0 million RCAS funding within the VIABLE program. These funds will be used to upgrade equipment at regional data centers to the SAIMS configuration. The existing systems are currently operating at near capacity level, and are unable to accommodate additional requirements imposed by the Financial Managers Integrity Act of 1982.

Total Reprograming Increase/Decrease	-

Approved (Signature and Date)
William H. Taft
William H. Taft, IV
Deputy Secretary of Defense
17 MAR 1989

DD FORM 1415-1
1 Mar 83

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Replaces DD Form 1415-1, 1 Jul 79, which is obsolete.

NEED FOR REPROGRAMMING

Mr. Hefner. In 1987, we earmarked $20 million of the Army's ASIMS computer funding. At that time, the reserve component automation system did not yet exist. Now, your reprogramming suggests that these funds cannot be used due to delay in awarding a contract for the RCAS. Yet the term RCAS was not used in any congressional report in 1987.

Where did you get the idea that these funds were only for RCAS?

General Freitag. It was not our understanding that they were only for RCAS. The language specifically said reserve forces automation. Although RCAS didn't exist at that time, we have since had other guidance which indicated that our reserve forces automation program should be contained within the umbrella called RCAS.

So it is our interpretation that since ASIMS provides reserve forces support that we have not violated the intent of the Congress in tha particular situation.

Mr. AuCoin. Will the Chairman yield?

Mr. Hefner. Yes.

Mr. AuCoin. What guidance are you referring to?

General Freitag. Sir, I have two sections of the guidance. The first is contained in the Appropriations language which reads, "However, at least $20 million is available only for reserve forces automation in consonance with the plan required above." That was specifically—if I can use the term "fenced," that is the money within which we have a fence around that dollar value. Part of our overall program that was set aside was the VIABLE program, which is what we called it at that time. It is now called ASIMS.

Mr. AuCoin. Mr. Chairman, let me just try to clarify what my understanding of this is, and try to—because it is at variance with what the Army seems to understand.

Congress provided this $20 million in fiscal year 1987, and the guidance Congress gave was to provide computers for the reserves. RCAS came later. Now the Army says that because there is RCAS, it wants to take the $20 million we have appropriated for the reserves and have it sent back to the Army.

Now, I would have raised the question—I think this committee ought to look at the question of other needs of the reserves to make sure that we consider whether there are other needs in the reserves, if this is truly money that could be spent in other ways, before we just take it away from them and give it back to the Army.

More than that, let me just ask you this question. What efforts has the Army made to use the $20 million to satisfy the very real computer needs that the Army reserves had, which we attempted to address in the fiscal year 1987 appropriation? What attempt did you make to use it?

General Freitag. We have attempted to use that money. If I may refer to one other piece of guidance, in the 1988 language we were guided—and section 8115, subpart C indicates that——

Mr. AuCoin. I don't have that.

General Freitag. If I may paraphrase, "None of the funds appropriated in this Act, referring to 1988, are available for procurement of micro or mini computers for the Army Reserves components until RCAS is awarded."

Our goal is to put in the field something that would support the total Army and the VIABLE/ASIMS program will do that. When I say we would like to spend the $20 million on the VIABLE system, I mean to have you recognize also that it does provide support to the guard and reserve because much of their processing currently exists through the VIABLE network.

Mr. AuCoin. This is 1988 language?

General Freitag. "None of the funds appropriated in this Act are available for procurement of mini or micro computers for the Army Reserve components until the RCAS contract is awarded."

Mr. AuCoin. Do you interpret that as being fencing of the funds?

General Freitag. No, sir. We read it to be an intent that we should get on with RCAS, which we are trying to.

Mr. AuCoin. You didn't infer that the prior fiscal year appropriation was fenced, did you?

General Freitag. No, sir. I inferred the fence from the 1987 language, that we had to spend it on reserves forces automation.

Mr. AuCoin. Did you?

General Freitag. No, sir. We did not have a program in place to put the money against, sir.

Mr. Hefner. Is there no place in the reserve or the guard that this $20 million could have been used? Is that what you are saying, that you had no other program to help the reserve or the guard?

General Freitag. As many Members of the committee know, there is a longstanding need for a reserve component automation. It is called RCAS.

Mr. AuCoin. Outside of RCAS.

Mr. Hefner. Let me go back, RCAS was not even mentioned.

General Freitag. Yes, sir.

Mr. Hefner. It was not even mentioned when we appropriated this $20 million, am I right? This was $20 million, that was fenced or earmarked for a particular purpose.

General Freitag. Yes, sir.

Mr. Hefner. You are saying to me that there was no place that you could spend this money legally?

General Freitag. The circumstances which unfolded with the $20 million fence that was established in 1987, at that time there was operative a program called CAMIS supposed to collect and gather together all the reserve automation requirements. CAMIS has been replaced by RCAS. It was the Army's reading of that that we should attempt to go ahead with RCAS. We made an inference from that.

In fact, at this time we are saying that the 1987 money can in fact benefit the reserve forces and support a tremendous amount of the automation needs that they have today, because we are approaching saturation.

Mr. AuCoin. General, are you saying that outside of RCAS there are no unfunded computer requirements in the National Guard or Reserves?

General Freitag. No, sir.

Mr. AuCoin. Why are you asking to take this money back for active Army requirements?

General **Freitag**. We believe that it will provide a greater service to total Army by use of this money to upgrade the regional processing centers which provide support to all, not just to a small component.

And the fact that RCAS is in design, is in development and design, we would suggest to the committee it makes better sense to hold off on that until we get RCAS.

Mr. **AuCoin**. I don't think I would agree with that, but if I did, I would still make the argument that there are unfunded other requirements that the reserves have that are out there today waiting for funding.

The Brookings Institute just recently came out with a report indicating that the plan for the Army to rely increasingly on reserves may be flawed because the reserves' state of readiness is not sufficient to really meet that mission. So when I think of $20 million that you think isn't needed for computer requirements, I would think that one might possibly pause for a second and say, well, perhaps it is not needed—I disagree with that, but one might reach that conclusion. Other things that the Brookings Institute looked at given the new reliance apparently that is going to be placed on the reserves, to look at unfunded readiness items that the guard and reserve could benefit from such as depot maintenance, real property maintenance, trucks, other support equipment. I can't believe that the highest priority that the Army Reserves have today is to let loose of this money and send it back to the active Army.

General **Freitag**. I cannot disagree with the need for additional money. As the Director of the Army Budget, it would be silly for me to do so.

We have many unfunded requirements. As we went through the assessment of those unfunded requirements, which is a total Army perspective, not just an active versus reserve, it was our assessment that the $20 million will benefit all to a greater degree than any single other investment within OPA-2.

Mr. **AuCoin**. What about the program manager for RCAS who would stand to benefit by these overall computer improvements that you think you would be able to achieve by this reprogramming. General Temple—he was asked to coordinate on this request to transfer funds back to the active Army?

General **Freitag**. I know that he has been almost in weekly dialogue with the director of our information systems acquisition agency, Lieutenant General Harris.

Mr. **AuCoin**. Has he been briefed?

General **Freitag**. I don't have that knowledge. I will provide that for the record.

[The information follows:]

General Temple and General Ward have been briefed on this action and concur with the proposed use of the funds. A copy of the letter is submitted for the record.

DEPARTMENT OF THE ARMY
OFFICE OF THE SECRETARY OF THE ARMY
WASHINGTON, D.C. 20310-0107

May 19, 1989

Office, Director of Information
Systems for Command, Control
Communications, & Computers

Honorable John P. Murtha
Chairman
Subcommittee on Defense
Committee on Appropriations
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

The Army community supports the reprogramming action FY 89-7 PA for the upgrade of the Army Standard Information Management System (ASIMS). This upgrade represents the best use of these funds for both the Active and Reserve Components. It will provide continued processing services to accomplish daily personnel, financial, and logistic needs of the Reserve and Active components. Also, it will support the full implementation of the redesigned financial systems as directed by the Financial Managers Integrity Act of 1982.

The Army supports this reprogramming action along with other automation programs which enhance automation support to the Reserve Components.

Sincerely,

Bruce R. Harris
BRUCE R. HARRIS
Lieutenant General, GS
Director

WILLIAM F. WARD
Major General, USA
Chief, Army Reserve

HERBERT R. TEMPLE, JR.
Lieutenant General, USA
Chief, National Guard Bureau

[CLERK'S NOTE.—The date of the letter indicates that this "briefing" did not occur until after the Committee's hearing had been conducted.]

Mr. AUCOIN. I think the committee needs to know whether the program manager of RCAS agrees or not. I think it is significant.

Mr. HEFNER. Can we have some more information. We won't be marking up this reprogramming for some time.

General FREITAG. I will provide that.

[The information follows:]

General Carey has been briefed and he supports the position of General Temple and General Ward concurring in the proposed use of the funds.

Mr. HEFNER. Mr. Miller.

Mr. MILLER. No questions, Mr. Chairman.

TOW 2 MISSILES—REPROGRAMMING No. 89-12PA

INTRODUCTION

Mr. HEFNER. The Committee will now consider reprogramming FY 89-12PA, which proposes to transfer $11,324,000 from the Army missile procurement reimbursable program to TOW 2. The stated purpose of this reprogramming is to replace TOW missiles in inventory which were diverted for foreign military sales customers.

The witness appearing in support of this request is Major General Merle Freitag, Director of Army Budget. General Freitag, your prepared statement and the reprogramming document will be placed in the record. Please summarize your statement and we will proceed with the questions.

SUMMARY STATEMENT OF GENERAL FREITAG

General FREITAG. Thank you again, Mr. Chairman.

Essentially this is a relatively straightforward request, in our view. We have, in fact, sold $11.3 million worth of TOW, basic TOW missiles to Morocco. The funds from that sale, although slow to materialize, have materialized. All the audits have been completed. The funds are now available in accordance with all the administrative and legal requirements, and should be available to the Army to allow us to buy the replacement item, which is the item currently in production, the Army TOW 2A. We would like to use the funds to purchase 1,115 TOW 2A missiles for the Army's use.

I would happy to answer any questions that you have, sir.

[The statement of General Freitag and the reprogramming document follows:]

STATEMENT OF GENERAL FREITAG

Mr. Chairman and Members of the Subcommittee: The action before you proposes a replacement and modernization of inventory reprogramming for $11.3 million to the fiscal year 1987 Missile Procurement, Army appropriation.

This reprogramming will provide for the procurement of approximately 1,115 TOW 2, 6 inch warhead configuration missiles as replacements for missiles provided from Army inventories for foreign military sales customers.

Although this action requests an increase to the direct Army program, the fund source is derived from other than Army funds. Therefore, no increase to the overall funding program is required.

UNCLASSIFIED
CLASSIFICATION

Page 1 of 1 Pages

REPROGRAMING ACTION

Appropriation Account Title: Missile Procurement, Army, 87/89	DoD Serial Number: FY 89-12 PA
Component Serial Number: FY 89-6 PA	(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

PRIOR APPROVAL ACTION

This action is submitted for prior approval because it proposes to increase the quantity of a missile to be procured by the Department. It represents modernization of US Army inventory resulting from the sale of items from inventory for which a later model will be procured. This proposal meets all the administrative and legal requirements of the Congress and has not been previously denied. This action is not reflected in the FY 1987 column of the FY 1990/1991 biennial budget.

REPROGRAMING INCREASE:								
Budget Activity 2: Other Missiles								
TOW 2	12000	110,500	12000	107,300	+1115	+11,324	13115	118,624

Explanation: On hand inventories of TOW missiles were diverted for foreign military sales customers and require replacement.

Total Reprograming Increase						+11,324		
REPROGRAMING DECREASE:								
Reimbursable Program		470,100	-	470,100	-	-11,324	-	458,776

Explanation: Basic TOW missiles that have been diverted from the inventory result in the need to replace the missiles with the TOW-2 configuration currently being procured by the US Army. Prepayment of $11,324,470.00 has been received and is available for transfer to the Direct Program.

Total Reprograming Decrease						-11,324		

Approved (Signature and Date)
William H. Taft
William H. Taft, IV
Deputy Secretary of Defense
20 MAR 1989

DD FORM 1415-1
1 Mar 83

UNCLASSIFIED
CLASSIFICATION

Replaces DD Form 1415-1, 1 Jul 79, which is obsolete.

PURPOSE OF REPROGRAMMING

Mr. **Hefner**. When were the missiles in inventory sold?

General **Freitag**. The sale was consummated in 1987, as I understand. It took a while for the sale to be completed and the funds to be transferred.

Mr. **Hefner**. Why are you seeking this reprogramming in the 1987 program? Why not 1988 or 1989?

General **Freitag**. As I understand the requirement, it is in the year of the actual sale, which was made in 1987, and therefore we would use 1987 as our year to reprogram the money into the missiles account.

Mr. **Hefner**. If they were sold in 1987, and the funds were collected in 1987, it took a long time to complete the transaction.

General **Freitag**. Yes, sir. There was a complicating factor having to do with the mixture of TOW and REDEYE and there was some confusing documentation that went with the two. By the time our accountants and the foreign military sales offices involved were able to sort that out, it did take much longer than it should have.

However, the money is now available and the intent I think is still correct in that we should be allowed to provide that to procure the TOW 2A missile.

Mr. **Hefner**. What TOW missile configuration was sold from inventory to foreign military sales and what missile configuration would be purchased if the reprogramming is approved?

General **Freitag**. The basic TOW which was the first version of our TOW missile system, which is now in its fourth generation of improvements, the basic TOW was the one that was sold to Morocco. The requirements as they are understood by us allow us to buy the replacement item for that given in this case that we have made three successive improvements, we are now into the missile known as TOW 2A, which is recognized as being very mission capable and would allow us to put into our inventory the currently needed weapon.

We don't get a dollar-for-dollar tradeoff there. In fact, it is a two for one difference between what was sold and what would be bought.

Mr. **Hefner**. So we won't be able to replace what we sold?

General **Freitag**. Not completely, no, sir.

Mr. **Hefner**. Why were the TOW missiles diverted from the inventory in the first place instead of tacking the foreign military sales requirement on to the DOD buy? It seems that would have been the best of all worlds.

General **Freitag**. The procedure, as I understand it, in order to meet the timeliness requirements of the customers, would be if we have the item available in inventory and can provide for later procurement to sell from inventory and then replace inventory out of production.

That sequence has been used, as I understand it, frequently in the past.

Mr. **Hefner**. But moneywise, it is probably not all that great a deal for us, would you say?

General **Freitag**. In terms of lethality, it represents an increase for the Army, because we will have gone from a basic TOW configuration to an improved TOW coming off the production line, albeit in lesser quantities, but more capable of dealing with the threat systems.

Mr. HEFNER. What country received the missiles from the inventory?

General FREITAG. Morocco.

Mr. HEFNER. What have total foreign military sales been in the TOW program in the last few years?

General FREITAG. I don't have that. I would be happy to provide it for the record, if I may.

[The information follows:]

The total FMS and Special Defense Acquisition Fund (SDAF) sales for the previous five years are as follows (quantity and FY):

	Fiscal year—					
	1984	1985	1986	1987	1988	1989
FMS	3,719	8,595	6,505	5,197	4,900	7,714
SDAF	2,130	3,200	1,200	1,500	3,412	none

Mr. HEFNER. You don't have what percentage have been satisfied from existing inventory?

General FREITAG. No, sir, I do not.

Mr. HEFNER. Well, why should Congress approve a reprogramming which would make available more missiles with a limited applicability against reactive armor? Why not apply the funds to a higher priority or wait until the TOW 2B is in full production?

General FREITAG. Sir, if I may, we have four generations of TOWs currently in our arsenal.

The one currently in production is the TOW 2A. Without getting into the sensitive nature of the capabilities of that particular system, it is our assessment that procuring the additional TOW 2A at this time rather than to wait until the end of next year to begin thinking about buying additional TOW 2Bs is an 18-month slip that we don't want to wait. TOW 2A is a very capable weapon.

Mr. HEFNER. Do you feel like if you wait, it makes you vulnerable? Do we have a sufficient supply of TOWs that we couldn't wait for the latest version?

General FREITAG. As you can imagine from the military standpoint, the additional missiles available to the commanders, especially in this kind of a sophisticated system, we don't have enough to start with, so not purchasing the additional 1,100 missiles for a period of an additional 18 months does cause us concern.

Mr. AUCOIN. Are they effective against the threat?

General FREITAG. Yes, sir, they are. Without getting into the classified nature, I would say they are—if you view the threat and its mixture of tanks, this weapon system will be available and lethal against the majority of the threat weapons for the next ten years.

Mr. HEFNER. Were we in short supply since 1987?

General FREITAG. Yes, sir.

Mr. HEFNER. So that is, what, 24 months?

General **Freitag**. Yes, sir. And we are continuing to buy each year. And to improve them each year, if I may, and that is the reason for the TOW 2B with its new warhead coming on line at the end of next year.

Mr. **Hefner**. We don't plan to sell from inventory any of the 2As?

General **Freitag**. Sir, I don't have that knowledge. I would have to furnish that for the record. I am not in the foreign military sales arena, so I can't answer that directly. I will be happy to provide it for the record.

[The information follows:]

The TOW 2A is our current most capable missile, having been fielded less than two years ago (September 1987). We are not currently selling TOW 2A missiles through FMS, but have recently received several requests to do so. Since TOW 2B is still in development, there are no current plans to sell TOW 2A from our inventory. However, it is possible we will sell TOW 2A as it is replaced by the TOW 2B.

Mr. **Hefner**. Mr. AuCoin.

Mr. **AuCoin**. No questions.

Mr. **Hefner**. Mr. Miller.

Mr. **Miller**. I understand you are not that well acquainted with the military sales, but I thought I heard you say that 1,100 missiles were involved in this sale.

General **Freitag**. Eleven hundred is the replacement quantity we want to purchase, sir. There were actually over 2,000 involved in the sale. The price difference for the basic TOW to the TOW 2A is about that order of magnitude.

Mr. **Miller**. You still will not have as many on the shelf when this transaction goes through?

General **Freitag**. That is correct.

Mr. **Miller**. They cost apparently around $10,000 each, am I correct on that?

General **Freitag**. I don't have the unit cost with me. I will provide that for the record.

Mr. **Miller**. From the figures that were thrown out it appears they will cost $10,000 each. You will not have as many TOW missiles after this is completed.

Do you feel that we can get along with an inventory that is below the amount you had in stock before the Morocco sales?

General **Freitag**. Yes, sir. The assessment is when we are able to make a sale to an ally, to a friend, that the collective numbers of missiles available world wide to defeat any threat would be still enhanced. So we have traded off 2,000 missiles of the basic TOW, which is less capable, and are asking for the authority to use those funds to buy a more capable, although in fewer quantity.

Mr. **Miller**. Nine-hundred short?

General **Freitag**. Yes, sir. Our continuing buy of the TOW will evolve for the next several years to continue to upgrade and buy additional quantities to put in the warehouse.

Mr. **Miller**. What is the difference in cost between the TOW and TOW 2?

General **Freitag**. If I may provide that for the record.

Flyaway costs are the costs related to production of a usable end item of military hardware. The present TOW missile unit flyaway costs by type missile are listed:

BASIC TOW	$8,097
ITOW	8,244
TOW 2	10,065
TOW 2A (FY 89)	10,408
TOW 2B (estimate)	11,879

Mr. **Miller**. Thank you.

Thank you, Mr. Chairman.

Mr. **Hefner**. Thank you. We will have further questions for the record.

Thank you, General.

General **Freitag**. Thank you, Mr. Chairman.

[Clerk's note.—Questions submitted for the record and the answers thereto follow:]

Question. What percentage (of FMS) have been satisfied from existing inventories?

Answer. The 3,787 TOW missile system HEAT rounds diverted from scheduled destinations to satisfy FMS equates to 10.3 percent.

Question. Why should Congress approve a reprograming which would make available more missiles with a limited applicability against reactive armor? Why not apply the funds to a higher priority or wait until TOW 2B is in full production?

Answer. First, the TOW 2A meets our current needs, it will defeat the fielded T-72/80 with reactive armor. Although new threat systems will be fielded in the future (FST1 and FST2), they will be phased in over a period of years and our TOW 2A missiles will have a valuable role for some time to come. Second, we are currently stocked at only half of our objective for combat loads of anti-armor missiles per vehicle. We need the additional missiles this money would provide now.

[Clerk's note.—End of questions submitted for the record.]

THURSDAY, MAY 11, 1989

FISCAL YEAR 1989 NAVY REPROGRAMMINGS

WITNESSES

REAR ADMIRAL RAYMOND M. WALSH, UNITED STATES NAVY, DIRECTOR, OPERATIONS DIVISION, OFFICE OF BUDGET AND REPORTS

REAR ADMIRAL GEORGE R. MEINIG, UNITED STATES NAVY, ASSISTANT DEPUTY COMMANDER FOR SURFACE WARFARE AND ANTI-AIR WARFARE SYSTEMS, NAVAL SEA SYSTEMS COMMAND

OPERATION AND MAINTENANCE, NAVY

REPROGRAMMING NO. 89-15PA

INTRODUCTION

Mr. HEFNER. The Committee will now consider reprogramming FY89-15PA, which proposes to transfer $243,600,000 from various Navy procurement accounts to Operation and Maintenance, Navy. The stated purpose of this reprogramming is to provide funding for a number of operation and maintenance programs that were not adequately funded in the fiscal year 1989 budget request. Further increases are for flight training, postal rate increases, and hazardous waste disposal.

The witness appearing in support of this request is Rear Admiral R.M. Walsh. Admiral Walsh, your prepared statement and the reprogramming document will be placed in the record.

Please summarize your statement and we will proceed with the questions.

SUMMARY STATEMENT OF ADMIRAL WALSH

Admiral WALSH. Thank you, Mr. Chairman.

In fiscal year 1988, as a result of the budget summit agreement, the topline for O&MN was reduced by $2.2 billion.

During the execution of that fiscal year, we reprogrammed a total of $471.5 million back into the O&MN appropriation, about $200 million of which was not known at the time the fiscal year 1989 budget submit was submitted.

As a result of fiscal year 1988 execution, and looking at fiscal year 1989 appropriation, we realized that we need an additional $400 million in the O&MN account to continue the same level of effort as fiscal year 1988.

Even then, we will still be roughly 5 percent in real terms below what we executed in fiscal year 1988.

This reprogramming request for $243.6 million funds a variety of operation and maintenance requirements, including ship operations, base operating support, and flight training operations.

[The statement of Admiral Walsh and the reprogramming document follow:]

Fiscal Year 1989 Navy Reprogramming Requests

I appreciate the opportunity to appear before you today to discuss the Navy's reprogramming requests.

FY 1989 OPERATION AND MAINTENANCE, NAVY REPROGRAMMING REQUEST

As a result of the 1987 Budget Summit Agreement, the FY 1988 and FY 1989 topline for Operation and Maintenance was reduced by $2.2 billion and $2.3 billion, respectively, from the original FY 1988/1989 President's Budget. Emergent Persian Gulf operations, combined with severe funding shortfalls rendered the Operation and Maintenance, Navy appropriation unexecutable, resulting in $471.5 million in reprogramming actions to sustain operations through the end of FY 1988.

The FY 1989 column of the original FY 1990/1991 President's Budget included reprogramming requests, totaling $394.0 million for program shortfalls and pay raise requirements. The request pending before the Committee is for $243.6 million for various readiness related shortfalls. The financing source is from our procurement appropriations.

A reprogramming of $59.9 million for Base Operating support is necessary because the FY 1989 Amended President's Budget was significantly below the program actually executed in FY 1988. Budget assumptions made when the budget was submitted have not materialized as forecast and therefore it is necessary to reprogram funds in order to maintain essential base operating requirements. The request includes $33.8 million for programs other than Base Operations. They were included in the Base Operations reprogramming because they represent an intrinsic part of the Navy infrastructure and support ongoing fact of life operations. A list of these items has been provided to the committee staff.

The request for Ship Operations utilities of $17.3 million is required based on actual FY 1988 ship utility consumption data which was higher than budgeted and required an $11.8 million reprogramming during FY 1988. The FY 1989 shortfall was not discovered until after submission of the FY 1989 Amended President's budget.

The FY 1989 budget for the Hazardous Waste Disposal program is significantly below what was actually executed during FY 1988. The $17.5 million increase is required to offset rising costs associated with federal and local legislation which limit legally acceptable methods of removal and disposal. The funds are required to preclude disruption of essential support operations.

The FY 1989 Servicewide Transportation program is significantly below the program actually executed in FY 1988. The FY 1989 Amended President's budget assumed more material could be transported by surface vice air. The $50.0 million is required to meet urgent fleet requirements and this material must be shipped by air in order to support logistic requirements of deployed fleet units.

The reprogramming includes $43.5 million for Weapons Systems Technical Support, including AEGIS, SQQ-89 Sonar System, MK-46 Torpedoes, 3M system and EMI (Electromagnetic Interference). The FY 1989 program for Engineering and Logistics Support were significantly reduced to finance other "must pay" bills and readiness programs. Despite our best efforts to live within reduced resource levels, we have not been able to maintain our weapons systems at an acceptable state of material readiness.

The Flight Training program shortfall of $29.3 million is primarily due to a restructuring of requirements and contract maintenance cost increases. The funds are necessary to fully support the pilot training rate in FY 1989.

The funding increase of $10.5 million for Postal is necessary as a result of last year's overall rate increase of 16.3 percent. This increased the costs of all types of mail used by the Department. Additionally, $14.1 million is to finance additional postal payments currently being experienced with the conversion to actual cost vice sampling of postal meters.

Rear Admiral Raymond Michael Walsh, U.S. Navy

Rear Admiral Raymond Michael Walsh is the Director, Operations Division, Office of Budget and Reports, Navy Comptroller and is the son of Mr. and Mrs. John E. Walsh of Philadelphia, Pennsylvania. He is a 1961 graduate of Villanova University, Villanova, Pennsylvania with a Bachelor of Science in Economics; a

1970 graduate of the United States Naval Postgraduate School, Monterey, California with a Master of Science in Operations Research; a member of the '55 class, Armed Forces Staff College, Norfolk, Virginina and a 1987 graduate of the Capstone Program, National Defense University, Fort Lesley McNair, Washington, D.C.

Rear Admiral Walsh's sea service included tours as Deck Officer, USS ORLECK (DD-886); Weapons Officer, USS SAMUEL N. MOORE (DD-747); Anti-Submarine Warfare Officer, Staff Commander Cruiser Destroyer Flotilla ELEVEN; Assistant Weapons and TALOS Battery Officer, USS LITTLE ROCK (CLG-4); Executive Officer, USS FARRAGUT (DLG-6) and Commanding Officer USS SCHOFIELD (FFG-3) and USS TICONDEROGA (CG-47).

Ashore Rear Admiral Walsh has served as an Analyst for the Cost and Economic Analysis Branch, Office of the Assistant Secretary of Defense (Program Analysis and Evaluation); Assistant for Programs, Office of the Chief of Naval Operations, Systems Analysis Division (OP-96P), Combat Systems Readiness and Training Officer, Staff Commander Naval Surface Force, U.S. Pacific Fleet and Head, Program Plans and Developemnt Branch, Office of the Chief of Naval Operations, General Planning and Programming Division (OP-901).

Rear Admiral Walsh's personal awards include the legion of Merit with gold stars in lieu of second and third awards, the Meritorious Service Medal with gold star in lieu of second award, the Navy Commendation Medal and the Navy Achievement Medal.

He is married to the former Lenore Margaret Walker of San Diego, California. They make their home in Fairfax, Virginia with their four children: Stephen, Erin, Brian and Richard.

Unclassified
CLASSIFICATION

Page 1 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)	DoD Serial Number: *FY 89-15 PA*
Component Serial Number: FY 89-4 PA	*(Amounts in Thousands of Dollars)*

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

PRIOR APPROVAL ACTION

This action requests authority to transfer $243.6 million to Operation and Maintenance, Navy, FY 1989, to fund various program shortfalls. The proposed sources of this transfer are Aircraft Procurement, Navy 89/91 ($50.0 million); Weapons Procurement, Navy 89/91 ($26.0 million); and Other Procurement, Navy 89/91 ($167.6 million). This request is for higher priority items, based on unforeseen military requirements, than those for which funds were originally appropriated, meets all administrative and legal requirements of the Congress and has not been denied by the Congress. It is submitted for prior approval since it involves the use of general transfer authority pursuant to Section 8014 of P.L. 100-463, the FY 1989 DoD Appropriations Act; and Section 1201 of P.L. 100-456, the FY 1989 Authorization Act. The increases requested are reflected in the FY 1989 column of the FY 1990/1991 biennial budget.

REPROGRAMING INCREASES:

FY 1989 Program
Operation and Maintenance, Navy, FY 1989

Budget Activity 2: General Purpose Forces

a	b	c	d	e	f	g	h	i
		11,051,459		11,111,459		+38,069		11,149,528
(Base Operating Support						+20,786)		

Explanation: The FY 1989 Base Operating Support program included in the President's FY 1989 Amended Budget was significantly below the program actually executed in FY 1988. The Amended Budget submission was based upon an assumption that it would be possible to reduce or curtail some base operating activities. A $67 million reprograming action into BOS was approved in FY 1988 because of the high level of fixed costs and fact-of-life programs which made it impossible to effect the level of reductions in the Amended Budget. In order to maintain these essential base operating requirements in FY 1989, an additional $20.786 million is required.

Unclassified
CLASSIFICATION

Page 2 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)	DoD Serial Number: *FY 89-15 PA*
Component Serial Number: FY 89-4 PA	(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

PRIOR APPROVAL ACTION

(Ship Operations Programs						+17,283)		

Explanation: The FY 1989 Amended Budget submission was based on attaining efficiencies that could not be achieved in either FY 1988 or FY 1989. The ship utilities account was budgeted at $179.0 million in FY 1988 and $183.0 million in FY 1989. Actual FY 1988 consumption experienced for ship utilities was $192.7 million and required an $11.8 million reprograming action in FY 1988 to fully fund this account. A similar reprograming action is required in FY 1989. This request for an additional $17.283 million in FY 1989 incorporates actual FY 1988 consumption experience, with appropriate adjustments for inflation and the number and types of ships that must be supported in FY 1989.

Budget Activity 3: Intelligence and Communications

		1,065,713		1,065,713		+8,392		1,074,105
(Base Operating Support						+6,842)		

Explanation: The FY 1989 Base Operating Support program included in the President's FY 1989 Amended Budget was significantly below the program actually executed in FY 1988. The Amended Budget submission was based upon an assumption that it would be possible to reduce or curtail some base operating activities. However, the high level of fixed costs and fact-of-life programs made it impossible to effect the level of reductions in the Amended Budget. In order to maintain essential base operating requirements in FY 1989, an additional $6.842 million is required.

Unclassified
CLASSIFICATION

Page 3 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenence, Navy, FY 1989 (Includes Transfer)	DoD Serial Number: FY 89-15 PA
Component Serial Number: FY 89-4 PA	(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

PRIOR APPROVAL ACTION

(Hazardous Waste Disposal +1,550)

Explanation: Funds are required in the amount of $1.550 million to phase in replacement of over 200 PCB contaminated electrical transformers in compliance with recent Environmental Protection Agency (EPA) changes to the Toxic Substance Act (FCR 76). These changes require replacement, by 1991, of all transformers currently in service. The FY 1990/1991 biennial budget includes $1.6 million in FY 1990 and 1991 to complete this requirement.

Budget Activity 7: Central Supply and Maintenance

LINE ITEM	b	c	d	e	f	g	h	i
Budget Activity 7: Central Supply and Maintenance		6,028,725		6,083,680		+131,026		6,214,706

(Base Operating Support +20,018)

Explanation: The FY 1989 Base Operating Support program included in the President's FY 1989 Amended Budget was significantly below the program actually executed in FY 1988. The Amended Budget submission was based upon an assumption that it would be possible to reduce or curtail some base operating activities. However, the high level of fixed costs and fact-of-life programs made it impossible to effect the level of reductions in the Amended Budget. In order to maintain essential base operating requirements in FY 1989, an additional $20.018 million is required.

(Hazardous Waste Disposal +17,508)

Explanation: The FY 1989 Hazardous Waste Disposal program is significantly below the program actually executed in FY 1988. The increases in funding requirements experienced in the Hazardous Waste Disposal program are due to rising costs associated with new and definitive federal and local legislation limiting legally acceptable methods of removal and disposal. An additional $17.508 million is required to comply with environmental laws and regulations in FY 1989 to preclude disruptions to essential support operations that may result because of violations.

Unclassified
CLASSIFICATION

Page 4 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)

DoD Serial Number: *FY 89-15 PA*

Component Serial Number: FY 89-4 PA

(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

PRIOR APPROVAL ACTION

(Servicewide Transportation +50,000)

Explanation: The FY 1989 Servicewide Transportation program is significantly below the program actually executed in FY 1988. The FY 1989 Amended Budget Submission was based on the assumption that it would be possible to reduce or curtail servicewide transportation costs through improved efficiencies to finance must-pay bills. Due to the need to meet the logistic requirements of the fleet and because of the urgency of the fleet mission, it has not been possible to transport material and equipment by surface rather than by air as anticipated in the FY 1989 Amended Budget Submission. An additional $50.0 million is required to maintain airlift of the highest priority of material at the FY 1988 level, to provide an acceptable level of transportation for second priority (repair parts, ammunition, aircraft engines, subsistence, and medicine) requirements and to provide for airlift of mail which would otherwise go by surface transportation.

(Weapons System Technical Support +43,500)

Explanation: The FY 1989 Amended Budget submission reflected significant reductions to engineering and logistics programs to finance must-pay bills and direct readiness programs. The Navy has made every effort to live within these reduced resource levels; however, it has not been possible to maintain all systems at an acceptable state of material readiness. An additional $32.5 million is required in the AEGIS Ship System Maintenance program to provide combat system engineering for two additional ships entering the fleets, increased planning effort for four additional Selected Restricted Availabilities (SRAs)/Regular Overhauls, increased support for two combat system baselines operational at AEGIS Combat System Center, increased microwave tube and electronic component repairs, and increased engineering for computer program backfit modifications and problem resolutions. Without this additional funding, the Navy's ability to maintain the AEGIS weapons system will be significantly degraded.

Unclassified
CLASSIFICATION

Page 5 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)	DoD Serial Number: FY 89-15 PA

Component Serial Number:	(Amounts in Thousands of Dollars)							
FY 89-4 PA	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
LINE ITEM	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

PRIOR APPROVAL ACTION

$5.5 million is needed to provide required operation and maintenance funding for the SQQ-89 Sonar System and to maintain the required asset readiness level for the growing inventory of MK-46 torpedoes.

$2.5 million is required in the Maintenance and Material Management (3M) program to maintain fleet readiness and prevent curtailment of vital updates to maintenance procedures that maintain material readiness. Surface ship updates to over 17,500 fleet maintenance feedbacks and shipyard participation in the Navy oil analysis program will be provided.

$3.0 million is required in the Electromagnetic Interference Control (EMI) program to maintain fleet readiness and a sound electromagnetic posture. The additional funding will provide specific (stand alone) system equipment feedback procedures, and vital configuration documentation and maintenance corrections.

a	b	c	d	e	f	g	h	i
Budget Activity 8: Training Medical and Other General Personnel Activities		3,803,449		3,803,449		+39,300		3,842,749
(Base Operating Support						+10,000)		

Explanation: The FY 1989 Base Operating Support program included in the President's FY 1989 Amended Budget was significantly below the program actually executed in FY 1988. The Amended Budget submission was based upon an assumption that it would be possible to reduce or curtail some base operating activities. However, the high level of fixed costs and fact-of-life programs made it impossible to effect the level of reductions in the Amended Budget. In order to maintain essential base operating requirements in FY 1989, an additional $10.000 million is required.

Unclassified
CLASSIFICATION

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)

DoD Serial Number: *FY 89-15 PA*

Component Serial Number: FY 89-4 PA

(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

PRIOR APPROVAL ACTION

(Flight Training +29,300)

Explanation: Implementation of budget compromise decisions in FY 1988 forced a restructuring of requirements, including the stand-down of the 14th Air Wing. This change in requirements, combined with maintenance contract cost increases, significantly impacted the flight training program, resulting in a stretch-out of the student pipeline and a temporary increase in the drop-out rate and number of flying hours required per student. The $29.3 million is required to meet these emergent requirements and ensure that the student pipeline is fully loaded in FY 1989 to produce the required number of graduates in FY 1990 and FY 1991.

Budget Activity 9: Administration and Associated Activities

		809,019		809,019		+26,813		835,832

(Base Operating Support +2,225)

Explanation: The FY 1989 Base Operating Support program included in the President's FY 1989 Amended Budget was significantly below the program actually executed in FY 1988. The Amended Budget submission was based upon an assumption that it would be possible to reduce or curtail some base operating activities. However, the high level of fixed costs and fact-of-life programs made it impossible to effect the level of reductions in the Amended Budget. In order to maintain essential base operating requirements in FY 1989, an additional $2.225 million is required.

(Postal Rate Increase/Accountability +24,588)

Explanation: An increase of $10.5 million is required to fund the United States Postal Service rate increase, effective 3 April 1988. An increase of $14.088 million is necessary, based on actual billings received, to finance additional postal payments associated with the Navy's conversion from a random sampling method to postal metering and billing on an actual cost method.

Unclassified
CLASSIFICATION

Page 7 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title:
Operation and Maintenance, Navy, FY 1989 (Includes Transfer)

DoD Serial Number:
FY 89-15 PA

Component Serial Number:
FY 89-4 PA

(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i
PRIOR APPROVAL ACTION								
TOTAL O&M,N, FY 1989 INCREASES						+243,600		
TOTAL REPROGRAMING INCREASES						+243,600		
REPROGRAMING DECREASES:								
FY 1989 Program								
Aircraft Procurement, Navy 89/91								
Budget Activity 1: Combat Aircraft								
1. F/A-18 (Fighter) Hornet								
	84	2,500,281	84	2,500,281		-50,000	84	2,450,281
Less: Advance Procurement (PY)								
		-140,000		-140,000				-140,000
	84	2,360,281	84	2,360,281		-50,000	84	2,310,281
Explanation: These funds are available as a result of rephasing of equipment procurement and are in line with current aircraft procurement plans and site activations. It is not anticipated that these funds will need to be reinstated.								
TOTAL AP,N 89/91 DECREASE						-50,000		
Weapons Procurement, Navy 89/91								
Budget Activity 2: Other Missiles								
1. BGM-109 TOMAHAWK								
	510	706,917	510	706,917		-11,300	510	695,617

Unclassified
CLASSIFICATION

Page 8 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)	DoD Serial Number: *FY 89-15 PA*
Component Serial Number: FY 89-4PA	*(Amounts in Thousands of Dollars)*

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i
PRIOR APPROVAL ACTION								
Less: Advance Procurement (PY)		-71,400		-71,400				-71,400
	510	635,517	510	635,517		-11,300	510	624,217
Explanation: These funds are available as a result of contract savings. It is not anticipated that funds will need to be reinstated.								
2. AIM/RIM-7 FM SPARROW	450	57,500	450	57,500		-4,700	450	52,800
Explanation: These funds are available as a result of a change in program requirements. It is not anticipated that these funds will need to be reinstated.								
Budget Activity 5: Spares and Repair Parts								
1. Spares and Repair Parts		87,412		87,412		-10,000		77,412
Explanation: These funds are available as a result of procurement milestone slippage and program restructuring. It is not anticipated that these funds will need to be reinstated.								
TOTAL WP,N 89/91 DECREASES						-26,000		
Other Procurement, Navy 89/91								
Budget Activity 1: Ships Support Equipment								
1. Strategic Platform Support Equipment		49,988		49,988		-9,900		40,088

Unclassified
CLASSIFICATION

Page 9 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)							DoD Serial Number: FY 89-15 PA	
Component Serial Number: FY 89-4 PA	*(Amounts in Thousands of Dollars)*							
	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
LINE ITEM	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i
PRIOR APPROVAL ACTION								
2. HM&E Items Under $2 Million		26,341		26,341		-2,600		23,741
3. Surface IMA		11,361		11,361		-4,600		6,761
4. Operating Forces IPE		7,064		7,064		-3,800		3,264
Explanation: These funds are available as a result of procurement milestone slippages due to refinement of equipment requirements and program restructuring. It is not anticipated that these funds will need to be reinstated.								
5. Steam Propulsion Improvement		8,318		8,318		-600		7,718
6. Other Propulsion Equipment		3,518		3,518		-2,200		1,318
7. Other Pumps		4,000		4,000		-2,500		1,500
8. Other Navigation Equipment		4,484		4,484		-2,200		2,284
9. Underway Replenishment Equipment		4,881		4,881		-2,400		2,481

Unclassified
CLASSIFICATION

Page 10 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)	DoD Serial Number: *FY 89-15 PA*
Component Serial Number: FY 89-4 PA	*(Amounts in Thousands of Dollars)*

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
PRIOR APPROVAL ACTION								
10. Other Generators		3,883		3,883		-3,300		583
11. Other Propellers and Shafts		4,126		4,126		-1,700		2,426

Explanation: These funds are available since they are no longer required for the purposes budgeted. It is also not anticipated that these funds will need to be reinstated.

Budget Activity 2: Communications and Electronic Equipment

LINE ITEM	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
1. Air Station Support Equipment		4,470		4,470		-1,000		3,470
2. Naval Space Surv System		11,483		11,483		-1,000		10,483
3. NCCS Ashore		15,735		15,735		-2,000		13,735
4. Verdin		3,930		3,930		-1,000		2,930
5 Submarine Comm Antennas		11,315		11,315		-1,500		9,815

Unclassified
CLASSIFICATION

REPROGRAMING ACTION

Appropriation Account Title:
Operation and Maintenance, Navy, FY 1989 (Includes Transfer)

DoD Serial Number:
FY 89-15 PA

Component Serial Number:
FY 89-4 PA

(Amounts in Thousands of Dollars)

	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
LINE ITEM	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i
PRIOR APPROVAL ACTION								
6. Satcom Ship Terminals		19,190		19,190		-2,500		16,690
7. Submarine Acoustic Warfare Sys		18,764		18,764		-3,000		15,764
8. AN/SLQ-32		71,020		71,020		-5,000		66,020
9. EW Support Equipment		4,824		4,824		-1,100		3,724
10. C-3 Countermeasures		5,639		5,639		-2,000		3,639
11. SSN Integ Comm		2,537		2,537		-2,500		37
12. Navy Tactical Data System		111,267		111,267		-9,934		101,333
13. Strategic Platform Support Equipment		92,626		92,626		-9,900		82,726
14. TSEC/KYV-5 (ANDVT)		47,546		47,546		-5,400		42,146

Unclassified
CLASSIFICATION

Page 12 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)	DoD Serial Number: *FY 89-15 PA*
Component Serial Number: FY 89-4 PA	*(Amounts in Thousands of Dollars)*

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i
PRIOR APPROVAL ACTION								
15. TRITAC Crypto (Tenley)		16,416		16,416		-4,000		12,416
16. Cryptographic Items Less Than $2 Million		14,322		14,322		-2,000		12,322
17. Microwave Landing System		7,505		7,505		-5,500		2,005

Explanation: These funds are available as a result of procurement milestone slippages due to refinement of equipment requirements and program restructuring. It is not anticipated that these funds will need to be reinstated.

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
18. AN/BLD-1 Interferometer		866		866		-866		0
19. AN/WLR-1		6,174		6,174		-800		5,374
20. AN/SPS-49		16,115		16,115		-3,400		12,715
21. Ship Comm Automation		6,144		6,144		-5,400		744
22. Radar Support		24,853		24,853		-3,000		21,853

Unclassified
CLASSIFICATION

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)

DoD Serial Number: *FY 89-15 PA*

Component Serial Number: FY 89-4 PA

(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

PRIOR APPROVAL ACTION

Explanation: These funds are available since they are no longer required for the purposes budgeted. It is not anticipated that these funds will need to be reinstated.

Budget Activity 3: Aviation Support Equipment

a	b	c	d	e	f	g	h	i
1. Weapons Range Support Equipment		57,163		57,163		-3,600		53,563
2. REWSON Photographic Equipment		3,337		3,337		-900		2,437

Explanation: These funds are available as a result of procurement milestone slippages due to refinement of equipment requirements and program restructuring. It is not anticipated that these funds will need to be reinstated.

a	b	c	d	e	f	g	h	i
3. Aircraft Rearming Equipment		11,864		11,864		-4,700		7,164

Explanation: These funds are available since they are no longer required for the purpose budgeted. It is not anticipated that these funds will need to be reinstated.

Budget Activity 4: Ordnance Support Equipment

a	b	c	d	e	f	g	h	i
1. AEGIS Support Equipment		39,135		39,135		-5,000		34,135

Explanation: These funds are available as a result of procurement milestone slippage due to refinement of equipment requirements and program restructuring. It is not anticipated that these funds will need to be reinstated.

Unclassified
CLASSIFICATION

Page 14 of 15 Pages

REPROGRAMING ACTION

Appropriation Account Title: Operation and Maintenance, Navy, FY 1989 (Includes Transfer)

DoD Serial Number: *FY 89-15 PA*

Component Serial Number: FY 89-4 PA

(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i
PRIOR APPROVAL ACTION								
2. Vertical Launch Systems	3	78,349	3	78,349		-2,300	3	76,049
Explanation: These funds are available due to the result of favorable contract pricing. It is not anticipated that these funds will need to be reinstated.								
3. Strategic Platform Support Equipment		384,723		384,723		-10,000		374,723
Explanation: These funds are available since they are no longer required for the purpose budgeted. It is not anticipated that these funds will need to be reinstated.								
Budget Activity 5: Civil Engineering Support Equipment								
1. Combat Construction Support Equipment		11,084		11,084		-1,500		9,584
Explanation: These funds are available as a result of procurement milestone slippages due to refinement of equipment requirements and program restructuring. It is not anticipated that these funds will need to be reinstated.								
Budget Activity 7: Personnel and Command Support Equipment								
1. Surface Combat System Trainer		23,984		23,984		-6,400		17,584

Unclassified
CLASSIFICATION

Page 15 of 15 Pages

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REPROGRAMING ACTION

Appropriation Account Title:
Operation and Maintenance, Navy, FY 1989 (Includes Transfer)

DoD Serial Number:
FY 89-15 PA

Component Serial Number:
FY 89-4 PA

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
		PRIOR APPROVAL ACTION						
2. Ship System Trainers		16,585		16,585		-1,500		15,085
3. Training Support Equipment		4,524		4,524		-1,200		3,324
4. Command Support Equipment		15,163		15,163		-3,000		12,163
5. Education Support Equipment		4,164		4,164		-1,000		3,164

Explanation: These funds are available as a result of procurement milestone slippages due to refinement of equipment requirements and program restructuring. It is not anticipated that these funds will need to be reinstated.

Budget Activity 8: Spares and Repair Parts

1. Spares and Repair Parts		447,100		447,100		-17,900		429,200

Explanation: These funds are available since they are no longer required for the purpose budgeted. It is not anticipated that these funds will need to be reinstated.

TOTAL OP,N 89/91 DECREASES						-167,600		
TOTAL REPROGRAMING DECREASES						-243,600		

Approved *(Signature and Date)*

William H. Taft

William H. Taft, IV
Deputy Secretary of Defense 07 APR 1989

DD FORM 1415-1
1 Mar 83

Unclassified
CLASSIFICATION

Replaces DD Form 1415-1, 1 Jul 79, which is obsolete

REQUIREMENT COMPARED TO 1989 APPROPRIATED

Mr. **Hefner**. Admiral, why is the Navy unable to accommodate $243.6 million requirement within the $24.8 billion appropriated for O&M?

Admiral **Walsh**. Mr. Chairman, as I said, even with the reprogrammings, which are included in the 1989 column of the fiscal year 1990 amended budget submit, we will still be about five percent in real terms below what we executed in fiscal year 1988.

We have continued to improve the efficiency of our operations and reduce costs wherever possible. When we submitted the fiscal year 1989 budget request, we were optimistic that we could achieve more efficiencies than we have actually been able to achieve.

REQUIREMENT COMPARED TO 1989 REQUEST

Mr. **Hefner**. During the hearings on the fiscal year 1989 budget, you didn't indicate that there would be an O&M shortfall of any great magnitude.

Admiral **Walsh**. That is correct. At the time, we were not aware of the extent which we would not be able to achieve all those efficiencies in fiscal year 1988.

In the fiscal year 1988 column of the 1989 submit, we had a reprogramming request only for CHAMPUS. There was a requirement for an additional $200 million in fiscal year 1988 which we were not aware of at the time.

TOTAL 1989 REQUIREMENT

Mr. **Hefner**. Could it be true that this is just the tip of the iceberg, that the Navy plans to reprogram another $266 million to O&M, which would bring us to, what, half a billion dollars, in 1989?

Admiral. **Walsh**. Our total reprogramming requests in the fiscal year 1989 column of the amended fiscal year 1990/1991 budget submit is just under $400 million.

That includes a $60 million transfer for the U.S. Coast Guard. This $243.6 million, plus $96.2 million for civilian pay raise. A total of $398.8 million is included in the fiscal year 1989 column of the fiscal year 1990/1991 budget submit.

This is a piece of that total, and to the best of my knowledge, all that we anticipate to get through the remainder of fiscal year 1989.

BASE OPERATIONS REQUEST

Mr. **Hefner**. Well, with this reprogramming the Navy is requesting an increase of $26.2 million for base operations. However, in the revised 1990 budget request, base operations is being cut $60 million.

Would it be prudent for the Navy to start cutting back on base operations expenditures now to accommodate the large reductions slated for 1990?

Admiral **Walsh**. Right now in the amended budget, submit, we have taken a two percent reduction in base operations support.

However, the funds that we are requesting, including the reprogramming in fiscal year 1989, is required in order to get to the fiscal 1990 position. We still have some things that we are trying to do to reduce the overall costs. Some of these initiatives take a little bit more time. For example, the reductions in fiscal year 1990, include the decomissioning of some older ships. As we go through the process of changing the make up of the fleet from what we had in fiscal year 1988 with what we will have in fiscal year 1991, there will be some economies. However, we still have those ships in fiscal year 1989.

SECURITY UPGRADE REQUEST

Mr. HEFNER. Here is one that peaks my curiosity. You stated that $3 million was required to fund 56 work years of efforts for security measures in support of the sensitive ordinance security program. That equates to $53,571 for each work year. Is that correct and would this be considered a high salary for security guards?

Admiral WALSH. This particular program is in an industrial fund activity. It is part of the mission funding.

Mr. AUCOIN. What else is included?

Admiral WALSH. The support that goes with them.

Mr. AUCOIN. What are the work years? What is the cost of the work years?

Admiral WALSH. I don't have the exact cost of the work years. I could get that for you.

Mr. AUCOIN. What percentage of the $3 million is in salaries?

Admiral WALSH. I don't have that with me, sir, I can get that for the record, sir.

[The information follows:]

While the cost of the security guards is a direct O&M cost, the guards are provided through the NIF and the cost is at the stabilized work year cost which includes NIF overhead. The stabilized rate work year cost for security guards at Naval Ordance/Weapon Stations is $53,510 per work year. This work year cost is broken out as follows:

Item	Cost	Percent
Direct labor cost	26,755	50
Overhead cost	26,755	50
Total	53,510	100

BASE OPERATIONS REQUEST

Mr. AUCOIN. Did you get into the nature of the base operations request—my understanding is that of the $59.9 million, over $30 million is not base operations at all, from what staff has been able to determine.

Is that correct, Admiral?

Admiral WALSH. Yes, sir; that is.

Mr. AuCoin. Why did the Navy classify these other programs, $33.8 million worth, erroneously as base operations when, in fact, they weren't base operation programs at all?

Admiral Walsh. When the fiscal year began, we looked at all the requirements that we had to fund, recognizing that some would come early in the fiscal year and others later.

We put together a total plan, including the reprogramming request.

We borrowed from base operations in order to fund some of these requirements and categorized them as base operations in the reprogramming report.

Mr. AuCoin. Wouldn't it be proper in coming before this committee to list separately what these other programs are rather than to lump them all together under the misleading category of base operations?

Admiral Walsh. Yes, sir.

It was not intended to be misleading. These things are intrinsic to the basic structure of the Navy.

Mr. AuCoin. $33.8 million out of $59 million is not base ops?

Admiral Walsh. Yes, sir.

Mr. AuCoin. Most of it is not base ops, but it is still called base ops?

Admiral Walsh. Yes, sir.

Mr. AuCoin. That is not a tidy way for the Navy to do its business, is it?

Admiral Walsh. It was not intended to be misleading.

Mr. AuCoin. Can you list separately those programs?

Admiral Walsh. Yes, sir, and we have provided them to the staff.

[Clerk's note.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Mr. AuCoin. Maybe in the future you won't lump them all in this manner.

Admiral Walsh. Yes, sir.

Mr. AuCoin. That would be my recommendation.

FLEXIBILITY IN THE SOURCE ACCOUNTS

Mr. Hefner. When the Navy can divert a large amount of funds, $167.6 million, with no discernible impact to original procurement objectives, an obvious flexibility exists in the OPN budgeting process.

This reprogramming action makes the OPN budget appear to serve as a contingency fund for other Navy appropriation categories as the need arises.

Would you comment on that?

Admiral Walsh. Sir, I wouldn't categorize it that way.

Mr. Hefner. I said it appears that way. There is reason to believe.

Admiral Walsh. As we go through execution, we look at those programs which are not executing at the original budgeted level. If they are behind in execution, or are programs which other subsequent budget adjustments have affected, we look at those programs as an asset that can be used for higher priority programs.

At the time that the budget was formulated, it was not intended that OPN be a bank.

Mr. **Hefner**. Mr. Miller?

POSTAL RATE INCREASE

Mr. **Miller**. Thank you, Mr. Chairman.

I notice that the Navy is requesting $24.6 million for increased postal rates and increased usage of the mail system. We understand the other services are accommodating this increase within the funds appropriated for O&M. Why does the Navy need to reprogram?

Admiral **Walsh**. There are two pieces to this. One is the postal rate increase. The other is an initiative now to go from a statistical cost estimate of postal charges to an actual expenditure system based on what each individual activity is spending for postal services.

We find that as we transition from one to the other, that the actual cost of postal operations is higher than what we experienced in the statistical process.

Mr. **Miller**. What is the total when the $24.6 million will be added to what you now have?

Admiral **Walsh**. What the total of the postal account would be?

Mr. **Miller**. Correct.

Admiral **Walsh**. In fiscal year 1988, our certified obligation was $56.261 million, and the ABS had $50.97 million. The fiscal year 1989 column of the 1990-91 ABS is $75.56 million.

Mr. **Miller**. Under another subcommittee of Appropriations, Treasury and Postal Service, we have an amount in a line item for revenue foregone, non-profit organizations and you sure are a nonprofit organization. Have you considered that you would have a reduced rate because of this?

Admiral **Walsh**. No, sir, I do not believe so.

We are paying our way, to the best of my knowledge, based on our postal usage.

Mr. **Miller**. I guess it is taking it from one pocket and putting it into the other when we reimburse postal for revenue foregone, but that is interesting. You are paying the full amount?

Admiral **Walsh**. Yes, sir.

Mr. **Miller**. And to get magazines, such as Playboy out at a reduced rate, it seems that you should be able to get a reduced rate on what you are sending out.

Admiral **Walsh**. Yes, sir.

I believe that we get the same rates on bulk mail that the Postal Service gives to other customers.

Mr. **Miller**. We will have to look into that.

Thank you, Admiral.

Thank you, Mr. Chairman.

Mr. **Hefner**. I guess maybe they could use the frank or something like that.

Mr. **Miller**. For the $53—or $24 million.

Mr. **Hefner**. Mr. Aucoin suggested they should have bought some stamps before they went up.

Mr. **Miller**. That would help.

Mr. **HEFNER.** We have to have a little levity in the hearing.

INITIAL TRAINER ACQUISITION

REPROGRAMMING NO. 88-43N

INTRODUCTION

Mr. **HEFNER.** The Committee will now consider reprogramming FY 88-43N, which proposes to substitute new sources in the amount of $43,000,000 from various programs to the Initial Trainer Acquisition program of the Navy. The stated purpose of this reprogramming is to continue development of trainers for the SH-60F and F-14D aircraft.

The witness appearing in support of this request is Rear Admiral Raymond M. Walsh, United States Navy, Director, Office of Budget and Reports. Admiral, your prepared statement and the reprogramming document will be placed in the record.

Please summarize your statement and we will proceed with the questions.

SUMMARY STATEMENT OF ADMIRAL WALSH

Admiral **WALSH.** Yes, sir.

This reprogramming is really to put money into the R&D account to accommodate a requirement of $33 million for the SH-60F and an additional $10 million for the F-14D Trainer.

[The statement of Admiral Walsh and the reprogramming document follows:]

FISCAL YEAR 1988 RDT&E, NAVY REPROGRAMMING REQUEST

This action reprograms $44.0 million within Research, Development, Test, and Evaluation, Navy 88/89 to properly fund development of the F-14D and SH-60F aircrew trainer.

The FY 1988 DoD Appropriations Act funded all initial trainers in the Aircraft Procurement, Navy (APN) appropriation. The Appropriations Act, however, does not allow APN funds to be used for research, development, test, and evaluation efforts. After review, it has been determined that the F-14D and SH-60F aircrew training systems are developmental efforts and therefore cannot be executed as appropriated in Aircraft Procurement, Navy. Approval of this increase to Initial Trainer Acquisition is necessary to finance the F-14D and SH-60F aircrew trainer development. Within the $44.0 million, $3,999 thousand has been accomplished as a below threshold action.

I appreciate this opportunity to describe the Department's reprogramming requests. I am available to answer your questions.

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Page 1 of 2 Pages

REPROGRAMING ACTION

APPROPRIATION ACCOUNT TITLE: Research, Development Test & Evaluation, Navy, 88/89

DOD SERIAL NUMBER: FY 88-43 N

COMPONENT SERIAL NUMBER: FY 88-9N

(Amounts in Thousands of Dollars)

LINE ITEM	PROGRAM BASE REFLECTING CONGRESSIONAL ACTION		PROGRAM PREVIOUSLY APPROVED BY SEC DEF		REPROGRAMING ACTION		REVISED PROGRAM	
	QUANTITY	AMOUNT	QUANTITY	AMOUNT	QUANTITY	AMOUNT	QUANTITY	AMOUNT
a	b	c	d	e	f	g	h	i

NOTIFICATION ACTION

This action reprograms $44.0 million within Research, Development, Test and Evaluation, Navy 88/89 to properly fund development of the F-14D and SH-60F aircrew trainers. This action is for a higher priority item, based on unforeseen military requirements, than those for which funds were originally appropriated, meets all administrative and legal requirements of the Congress and has not been denied by the Congress. It is submitted for notification since it involves an increase to a program element in excess of $4.0 million. This action is not reflected in the FY 1988 column of the Amended FY 1988/1989 Biennial Budget.

REPROGRAMING INCREASES

FY 1988 PROGRAM

Budget Activity 4: Tactical Programs

LINE ITEM	QUANTITY	AMOUNT	QUANTITY	AMOUNT	QUANTITY	AMOUNT	QUANTITY	AMOUNT
1. 0604708N, Initial Trainer Acquisition						+43,999		43,999

Explanation: The increase is required to continue development of the F-14D and SH-60F aircrew trainers. The FY 1988 DoD Appropriation Act funded all initial trainers in the Aircraft Procurement, Navy (APN) appropriation. The Appropriation Act, however, does not allow APN funds to be used for research, development, test and evaluation efforts. After review, it has been determined that the F-14D and SH-60F aircrew training systems are developmental efforts and therefore cannot be executed as appropriated in Aircraft Procurement, Navy. Approval of this increase to Initial Trainer Acquisition funding is necessary to continue F-14D and SH-60F aircrew trainer development. Of the above increase, $3,999 thousand has been accomplished as a below threshold action.

TOTAL REPROGRAMING INCREASE +43,999

REPROGRAMING DECREASES

FY 1988 PROGRAM

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Page 2 of 2 Pages

REPROGRAMING ACTION

APPROPRIATION ACCOUNT TITLE: Research, Development, Test & Evaluation, Navy, 88/89

DOD SERIAL NUMBER: *FY 88-43 N*

COMPONENT SERIAL NUMBER: FY 88-9N

(Amounts in Thousands of Dollars)

LINE ITEM	PROGRAM BASE REFLECTING CONGRESSIONAL ACTION		PROGRAM PREVIOUSLY APPROVED BY SEC DEF		REPROGRAMING ACTION		REVISED PROGRAM	
	QUANTITY	AMOUNT	QUANTITY	AMOUNT	QUANTITY	AMOUNT	QUANTITY	AMOUNT
a	b	c	d	e	f	g	h	i
NOTIFICATION ACTION								
Research, Development, Test and Evaluation, Navy, 88/89								
Budget Activity 4: Tactical Programs								
1. 0603268N, Naval Airship		25,000		21,000		-3,999		17,001
Explanation: These funds are being made available to fund a higher priority emergent item. It is not anticipated that these funds will need to be reinstated.								
Budget Activity 6: Defensewide Mission Support								
1. 0305160N Defense Meteorological Satellite Program		40,000		40,000		-40,000		
Explanation: The Navy Remote Ocean Sensing System (NROSS) program has been terminated by the Navy. Funds were not requested in the initial FY 1988/1989 biennial budget and are not being requested in the Amended FY 1988/1989 Biennial budget for NROSS. Congress added $40.0 million to the FY 1988 RDT&E budget for this program. Given the present terminated status of the program, funds added by Congress in FY 1988 can be made available for the aircrew trainer.								
TOTAL REPROGRAMING DECREASES						-43,999		

APPROVED (Signature and Date)

William H. Taft IV William H. Taft, IV 9 JUN 1988
Deputy Secretary of Defense

DD FORM 1 JUL 79 1415 - 2

UNCLASSIFIED
CLASSIFICATION

Replaces DD Form 1415, 1 Feb 63 & DD Form 1415-2, 1 Jan 75, which are obsolete

PURPOSE OF REPROGRAMMING

Mr. HEFNER. According to the Navy, these funds were needed during calendar year 1988. What has been the overall delay in these programs from the reprogramming delay?

Admiral WALSH. To give you a little bit of the history of it, we had funding for these trainers in fiscal year 1987 and this was the fiscal year 1988 continuation of that activity. We continued the funding in fiscal year 1988, and as you know, we were operating under a continuing resolution in fiscal year 1988.

By the time fiscal year 1988 funds were appropriated in APN vice R&D, obligation had already occurred in the R&D account.

These funds are to pay back what has already been obligated.

Mr. HEFNER. According to the Navy, some additional fiscal year 1988 funds have already been obligated for the SH-60 and the F-14 Trainer programs, even before approval of this reprogramming. Would you explain if that is the case, and if it is the case, why did that occur?

Admiral WALSH. No, sir; that is not exactly the case.

The funds were obligated under the continuing resolution before the appropriation put the money into APN. Following the appropriation, we went forward with a reprogramming, but at that point the obligation had already been incurred.

Mr. HEFNER. In the Bush budget revision, the F-14D program was terminated and the SH-60F program was delayed until fiscal year 1991. Why can't we terminate and delay the corresponding trainers as well?

Admiral WALSH. First of all, the F-14D program, the remanufacture piece of that is still ongoing. Both the SH-60 and the F-14D, aircraft will be delivered; we will be standing up squadrons starting next year and the trainers are required for the pilot training in those aircraft.

Mr. HEFNER. Mr. AuCoin?

Mr. AUCOIN. I have no questions.

Mr. HEFNER. Mr. Miller?

Mr. MILLER. No questions.

ENHANCED MODULAR SIGNAL PROCESSOR (EMSP)

Mr. HEFNER. Admiral Walsh, thank you for being here.

I have a statement to include at this point.

The Navy has spent over $300 million to develop a new standard signal processor for use in its ASW platforms. This processor, EMSP, will allow the Navy to greatly improve its ability to locate Soviet submarines.

EMSP will come in two versions: the SEM-B type is ready for production now and the SEM-E version is expected to be available within two years. The SEM-B will be used on the Seawolf submarine and the SURTASS system as a minimum.

The contractor set up a production line and spent $56 to $100 million of their own money based on the quantities the Navy said they planned to buy. Last year it came to the committee's attention that the Navy had not placed any orders and the contractor was facing a production break. The cost to break the production line and restart it later is expected to be in the $30 to $50 million range.

The conferees on the fiscal year 1989 Defense Appropriations bill endorsed a Navy plan to reprogram $22 million to keep vendors on line by purchasing the components, but not assembling the systems until later. The conferees also expressed concern about the Navy's acquisition plan and directed them to evaluate several alternatives and report back to the committees by March 1, 1989.

Neither the programming nor the acquisition plan have been submitted to the Congress. Admirals Loftus and Meinig testified on 13 April that the Navy was fully committed to EMSP and that the reprogramming would be delivered within two weeks, by 27 April.

The Navy subsequently notified me that it had been delayed again, but that it would be here by this 11 May reprogramming hearing. Tuesday I was told it would not be here by today either.

AT&T has said they can hold out until the end of May before they must terminate contracts and let suppliers go. Now, the Navy says they are committed to EMSP systems, but they have been working on this small reprogramming since last August and we still don't have it. If the production line is broken, the Navy and the taxpayers will have to fund an additional $30 to $50 million. This could go higher since the vendor contracts would have to be renegotiated.

Now, I would like to know where that reprogramming request is and if this is the way the Navy is going to react to the will of this committee? We are expected to act on your reprogramming requests and I think we have a good record, but this committee deserves better cooperation than we have had on this particular issue.

I would like to know exactly who in the Navy, the name and the title, is responsible for this delay and would you explain why this committee. We are expected to act on your reprogramming reest to the Navy when similar actions of interest to the committee are subject to continuing bureaucratic delay on the part of the Navy?

Would you like to comment on that?

Admiral WALSH. Yes, sir, I just happened to have Admiral Meinig with me.

Admiral MEINIG. Briefly, it is something we have been working very diligently for and has taken longer than we anticipated, as you are aware. There is a decision meeting tomorrow, and it is our intention that we will not let the contractor break the line. The particulars of how the program will be executed will be decided tomorrow.

Mr. HEFNER. I understand the fact that you are very busy people, but we are also very busy people.

Admiral WALSH. Yes, sir.

Mr. HEFNER. If you are not going to be able to deliver on time, we always have someone in our office, we can be called and informed that there is a problem. But here we were promised two weeks, we heard nothing. We were then promised that we would have an answer on this today, and to this point, we have nothing.

I don't think this committee operates that way. We don't expect you to operate that way and when you bring a reprogramming to us—now I don't speak for the Chairman, but I am just making the point that if we are expected to act expeditiously, then we expect you to do the same, especially when we sit here in the hearing and you tell us when it will be here. I didn't say two or three weeks. You said "we will have that to you within two weeks." Then on another case, you said we would have it by today's hearing. Now, Admiral Walsh, you say a little more time. I don't know what that means.

Admiral WALSH. Yes, sir.

Admiral MEINIG. With your permission, sir, I would like to make just a few comments since I was the one that put the two weeks on the table on the 13th of April with the sincere expectation that we would be able to meet that.

I guess the analogy that I might use is an elephant laboring to bring forth a mouse, because in the context of the monies that you deal with and the monies the Navy deals with, $22 million is not a very great figure. But I can assure you, sir——

Mr. HEFNER. Let me draw another analogy for you. If I am a stock car driver and I am running a $100,000 automobile, if a dollar and a quarter spark plug is part of that operation, it is no minor thing, but it is important to somebody.

I understand what you are saying. This committee and the committee I chair—we probably have authority to spend a third of the entire budget, but there is an awful lot of things that are important to people and—not to be disrespectful—but I don't particularly like that analogy that this is something that is very small and it shouldn't be handled expeditiously.

Admiral MEINIG. It was not intended to be frivolous or controversial. The $22 million represents to the Navy a far greater interest than the monetary amount would indicate. As I explained approximately a month ago, to you and the other committee members, Mr. Chairman, and I feel they are sincere. EMSP is the heart of the signal processing that will make Navy's antisubmarine warfare efforts possible in a growth and countering the threat sense. We believe in that. We invested in the architecture, the computer programs and the technology. The contractor and the program office, I believe, have done a very responsible job in bringing it along.

The two weeks stretching to four weeks I cannot make excuse for except to say mea culpa. I, obviously, was not able to force the necessary meetings to that point. When this hearing was scheduled for today, an attempt was made to have the meeting with the Secretary designate in order to have a decision by this meeting. The schedules of the principals were not permissive of that.

That meeting is scheduled for tomorrow, and thus Admiral Walsh's comment that just a little more time. We expect a day in this particular case, till that meeting tomorrow is conducted in order to provide the Navy answer.

I would reassure you again that we remain committed to the program. We remain committed to continuing that production line.

Mr. HEFNER. What are you saying to me now?

Admiral MEINIG. I am saying that Mr. Garrett will have a meeting tomorrow that is intended to resolve this for the Navy and to put the program in place, so that he can personally stand behind it and continue as the Navy goes about its business, sir.

Mr. **Hefner**. Mr. AuCoin.

Mr. **AuCoin**. No questions.

Mr. **Hefner**. Thank you, gentlemen.

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THURSDAY, MAY 11, 1989.

FISCAL YEAR 1989 AIR FORCE REPROGRAMMINGS

WITNESS

MAJOR GENERAL GEORGE LARSON, DEPUTY COMPTROLLER, BUDGET, DEPARTMENT OF THE AIR FORCE

AIRBORNE SELF PROTECTION JAMMER

REPROGRAMMING NO. 89-1N (REVISED)

INTRODUCTION

Mr. **HEFNER.** The Committee will now consider reprogramming FY 89-1N (Revised) which proposes to transfer $172.2 million from F-16 combat aircraft to F-16 modifications. The stated purpose of this reprogramming is a realignment of fiscal 1989 funding consistent with the current execution plan.

The witness appearing in support of this request is Major General George Larson, Deputy Comptroller, for Budget. General Larson, your entire statement and reprogramming document will be part of the record. Please summarize your statement, then we will have questions.

SUMMARY STATEMENT OF GENERAL LARSON

General **LARSON.** Thank you, Mr. Chairman. Just a brief statement.

This is a reprogramming request within the Aircraft Procurement account to install the Airborne Self Protection Jammer—ASPJ—on the Block 40 of the F-16 aircraft. It is a smart move because it provides an internal system versus external system on that aircraft, thereby increasing range, reducing drag, and it also gives the LANTIRN night attack F-16 a better ECM capability.

In that vein, we would like to request approval and proceed with the reprogramming, sir.

[The statement of General Larson and the reprogramming document follow:]

STATEMENT OF MAJOR GENERAL LARSON

Mr. Chairman and members of the Committee: This reprograming proposes to realign $172.2 million in resources within the Air Force Fiscal Year 1989 Aircraft Procurement Appropriation.

This proposal provides for funds in the F-16 modifications line to pay for the retrofit of the Airborne Self Protection Jammer (ASPJ) group A and group B kits into block 40 F-16 aircraft. The requirement for this reprogramming reflects a shift in Tactical Air Command's priorities to equip LANTIRN (Low Altitude Navigation and Targeting Infrared System for Night) aircraft with ASPJ at the earliest possible date. This will eliminate the necessity to carry an additional external pod, thereby reducing drag and increasing range and mission effectiveness.

We propose to realign funds from the F-16 weapon system to the modification line consistent with our current execution plan.

The impact of not reprogramming these funds would be to delay achieving priority installation in block 40 aircraft and create block 50 inefficiencies as well as basing problems and support inefficiencies.

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Page 1 of 1 Pages

REPROGRAMING ACTION

Appropriation Account Title: Aircraft Procurement, Air Force, 1989/1991

DoD Serial Number: FY 89-1 N (Rev)

Component Serial Number: FY 89-2 N (Rev)

(Amounts in Thousands of Dollars)

LINE ITEM	Program Base Reflecting Congressional Action		Program Previously Approved by Sec Def		Reprograming Action		Revised Program	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i

NOTIFICATION ACTION

This action is resubmitted to revise the request in FY 89-1 N from $102.4 million to $172.2 million to reprogram the FY 1989 Airborne Self Protection Jammer (ASPJ) assets within the FY 1989 Aircraft Procurement appropriation. The purpose is to realign the FY 1989 funding consistent with the current execution plan. Notification action is required since the amounts to be moved exceed the reprograming threshold. This increase is for a higher priority item, based upon unforeseen military requirements, than the item for which funds were originally appropriated. This action meets all administrative and legal requirements of the Congress and has not been denied by the Congress. This action is partially included in the FY 1989 column of the FY 1990/1991 Biennial Budget.

REPROGRAMING INCREASE:

Budget Activity 5: Modification of In-Service Aircraft

a	b	c	d	e	f	g	h	i
F-16	XX	71,200	XX	71,200	-	+172,200	XX	243,400

Explanation: Prior year Block 40 F-16 production aircraft incorporated structural provisions such as space, cooling and power to accept the ASPJ. The current plan is to equip these aircraft with ASPJ production equipment (Group B) and ASPJ peculiar aircraft provisions (Group A) as the most expeditious method of deploying ASPJ.

TOTAL REPROGRAMING INCREASE: +172,200

REPROGRAMING DECREASES:

Budget Activity 1: Combat Aircraft

a	b	c	d	e	f	g	h	i
F-16 C/D MYP	180	3,331,178	180	3,331,178	-	-172,200	180	3,158,978
Less: Adv Proc (PY)	XX	-646,100	XX	-646,100	-	-	XX	-646,100
		2,685,078		2,685,078		-172,200		2,512,878

Explanation: This decrease is the result of transferring ASPJ Group A and B kits, support equipment, data and nonrecurring effort from the F-16 production program to the F-16 modification program for incorporation in F-16 Block 40 aircraft procured in prior years.

TOTAL REPROGRAMING DECREASE: -172,200

Approved (Signature and Date)

William H. Taft

William H Taft, IV
Deputy Secretary of Defense
24 MAR 1989

DD FORM 1415-2
1 Mar 83

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Replaces DD Form 1415-2, 1 Jul 79, which is obsolete.

AIRBORNE SELF PROTECTION JAMMER

Mr. HEFNER. General Larson, last August the Tactical Air Command determined that it wanted to put the first ASPJ on LANTIRN-equipped F-16; is that correct?

General LARSON. Yes, Mr. Chairman, that is correct.

Mr. HEFNER. Why didn't the Air Force notify the Congress then, so a funding realignment could have been considered during conference action on the 1989 Appropriations Act?

General LARSON. Mr. Chairman, at that time we were still in the throws of the Defense Acquisition Board process and aligning the ASPJ program with the Navy and making sure that we had agreement on how to proceed, the numbers to buy, and things of that nature. So we deferred coming forward to Congress until we had a coherent plan among the services for ASPJ.

Mr. HEFNER. The initial ASPJ reprogramming document in 1989 was transmitted to Congress January 19, 1989. If Congress had approved that action as requested, the Air Force would not have been able to execute the ASPJ 1989 program as it intended, would it?

General LARSON. Sir, that is correct, it would not have been able to do so.

Mr. HEFNER. How many Block 40 LANTIRN-equipped F-16s will receive ASPJ as a modification before Block 50 F-16s start receiving ASPJ in the production line?

General LARSON. Sir, I don't have that answer. I will provide that answer for the record, if that is acceptable, sir.

Mr. HEFNER. Can you supply it for the record then.

General LARSON. Yes, Mr. Chairman.

[The information follows:]

175 Block 40 LANTIRN equipped F-16s will receive ASPJ as a modification before Block 50 F-16s start receiving ASPJ in the production line.

Mr. HEFNER. How many of the ASPJ systems can you buy including group A costs and integration for $172.2 million?

General LARSON. We are planing on buying and installing 39 systems for that amount.

Mr. HEFNER. How many?

General LARSON. Thirty-nine, sir.

Mr. HEFNER. Well last year when we provided the money you said you could buy 50. What is the problem?

General LARSON. Thirty-nine in the current line and there would be an additional 11 that we would have to go back and retrofit. That was my error. The number is 50.

Mr. HEFNER. OK.

Mr. AuCoin.

Mr. AUCOIN. I don't have any questions, Mr. Chairman.

Mr. HEFNER. What is the current meantime-between-failure level for ASPJ and what is the goal?

General LARSON. Sir, I do not have a current figure for you. When I inquired, there was no measurement being taken on the developmental ASPJ. The goal is 28 mean flight hours per between critical failure and that is for the production version of the common system.

Mr. HEFNER. The Committee understands that the DAB-IIIA limited production decision for ASPJ scheduled for April or May has slipped. What are the reasons for the delay, what is the new schedule and the impact on 1989 program execution?

General LARSON. Mr. Chairman, that is correct. There has been a slip. The slip is due to availability of the test range at Eglin AFB, Florida, due to prioritization and weather cancellations. The new schedule is a slip till June 12th. As far as the impact on program execution, we don't believe there will be any. We still plan on a 15 July 1989 contract award.

[Additional information follows:]

The Defense Acquisition Board (DAB) IIIA decision was originally scheduled for 24 May 1989. The DAB actually slipped to 12 June 1989. This delay was caused by weather cancellation and higher priority missions at the Elgin AFB, FL test range which slipped completion of flight test. Flight test results were required for DAB. The DAB met on 12 June 1989 and the FY 89 contract is expected by the Navy is to be awarded to the ASPJ Joint Venture on 15 August 1989.

Mr. HEFNER. The 1989 appropriation for ASPJ after the congressional reduction was $156.6 million, yet the reprogramming request is for $172.2 million. What other element within the F-16 line will be reduced to accomplish this reprogramming?

General LARSON. Sir, I do not have an answer for you at this time. I asked this morning the people in the acquisition business; they are still looking. We will provide that to the Committee as soon as the determination is made.

[The information follows:]

The $15.6 million delta between the fiscal year 1989 appropriation and the requested reprogramming is required for "must-do" tasks in fiscal year 1989. To fund this delta, the Air Force plans to reduce the funds set aside for engineering changes and rephase flight test support.

Mr. HEFNER. Mr. AuCoin?

Mr. AUCOIN. No questions.

MC-130H COMBAT TALON II

REPROGRAMMING NO. 89-14PA

INTRODUCTION

Mr. HEFNER. The Committee will now consider reprogramming FY 89-14PA which proposes to transfer $125 million from numerous sources to the MC-130H special operations forces Combat Talon II aircraft. The stated purpose of this reprogramming is to fund cost increases on Combat Talon II aircraft.

The witness appearing in support of this request is Major General George Larson, the Deputy Comptroller for Budget. General Larson, your prepared statement and the reprogramming document will be placed in the record.

SUMMARY STATEMENT OF GENERAL LARSON

General LARSON. Mr. Chairman, just a brief comment. The funds are requested, as I have indicated, to finish cost growth resulting from program restructure, for nonrecurring contract furnished equipment, peculiar ground support equipment and technical data that will allow us to complete the 24 aircraft MC-130H procurement program.

[The statement of General Larson and the reprogramming document follow:]

STATEMENT OF MAJOR GENERAL LARSON

Mr. Chairman and members of the Committee: This reprogramming proposes to reprogram $125.0 million in resources within the Air Force Fiscal Year 1989 Aircraft Procurement, Missile Procurement and RDT&E Appropriations.

This proposal provides for funds for the Special Operation Forces Combat Talon II aircraft. The Air Force is procuring 24 MC-130H Combat Talon II aircraft for night/adverse weather/low level operations to relieve the current shortfall in long-range infiltration and/or resupply of special operations forces. The Combat Talon II program was restructured to recognize the development nature of the radar and to reduce both concurrency and financial risk.

The funds requested will be used to finance the cost growth resulting from the program restructure for nonrecurring, contractor furnished equipment, peculiar ground support equipment, and technical data.

In developing this request, the Air Force has identified areas within the Aircraft, Missile, and RDT&E appropriations where funds are available because of reductions and other program changes.

This reprogramming is essential to proceed with the Combat Talon II restructure plan.

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Page 1 of 11 Pages

REPROGRAMING ACTION

Appropriation Account Title AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)	*DoD Serial Number* ***FY 89-14 PA***
Component Serial Number FY 89-10 PA	*(Amounts in Thousands of Dollars)*

	Program Base Reflecting Congressional Action		*Program Previously Approved by Sec Def*		*Reprograming Action*		*Revised Program*	
Line Item	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*

PRIOR APPROVAL ACTION

This reprograming action is being submitted for prior approval because it involves the use of general transfer authority provided by Section 1201, Public Law 100-456, DoD Authorization Act, 1989 and Section 8014, Public Law 100-463, DoD Appropriation Act, 1989 to fund cost increases on Special Operation Forces Combat Talon II aircraft. The requested increase is for a higher priority item, based on unforeseen military requirements, than the items for which funds were originally appropriated. This request meets all the administrative and legal requirements of the Congress, and has not been denied by Congress. This action is reflected in the FY 1989 column of the FY 1990/1991 Biennial Budget, and affects Tactical and Intelligence Related Activities (TIARA).

REPROGRAMING INCREASE:

AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991

Budget Activity 1: Combat Aircraft

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
MC-130H - SOF	4	225,295	4	225,295	-	+125,000	4	350,295
Less: Adv Proc (PY)	XX	-15,800	XX	-15,800	-	-	XX	-15,800
		209,495		209,495		+125,000		334,495

EXPLANATION:
Funds program restructure accomplished to finance cost growth in nonrecurring, contractor furnished equipment, peculiar ground support equipment, and technical data.

TOTAL REPROGRAMING INCREASE:						+125,000		

REPROGRAMING DECREASES:

AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991

Budget Activity 1: Combat Aircraft

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
F-15 D/E	36	1,445,805	36	1,445,805	-	-5,000	36	1,440,805
Less: Adv Proc (PY)	XX	-154,200	XX	-154,200	-	-	XX	-154,200
		1,291,605		1,291,605		-5,000		1,286,605

UNCLASSIFIED

UNCLASSIFIED
CLASSIFICATION

REPROGRAMING ACTION

Appropriation Account Title
AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)

DoD Serial Number
FY 89-14 PA

Component Serial Number
FY 89-10 PA

(Amounts in Thousands of Dollars)

Line Item	*Program Base Reflecting Congressional Action*		*Program Previously Approved by Sec Def*		*Reprograming Action*		*Revised Program*	
	Quantity	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*

PRIOR APPROVAL ACTION

EXPLANATION:
Funds required for higher priority program. Restoration of these funds will be required in subsequent fiscal years.

Budget Activity 6: Aircraft Spares and Repair Parts

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
Spares and Repair Parts	XX	2,934,091	XX	2,934,091	XX	-50,000	XX	2,884,091

EXPLANATION:
Funds required for higher priority program. Restoration of these funds will be required in subsequent fiscal years.

Budget Activity 7: Aircraft Support Equipment and Facilities

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
Industrial Responsiveness	XX	23,413	XX	23,413	XX	-100	XX	23,313

EXPLANATION:
Funds required for higher priority program. Restoration of these funds will be required in subsequent fiscal years.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
Other Production Charges	XX	1,075,644	XX	1,075,644	XX	-1,000	XX	1,074,644

EXPLANATION:
Funds required for higher priority program. Restoration of these funds will be required in subsequent fiscal years.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
Common ECM Equipment	XX	250,446	XX	250,446	XX	-1,000	XX	249,446

EXPLANATION:
Funds required for higher priority program. Restoration of these funds will be required in subsequent fiscal years.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
TOTAL REPROGRAMING DECREASES: (AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991)						-57,100		

UNCLASSIFIED

UNCLASSIFIED
CLASSIFICATION

Page 3 of 11 Pages

REPROGRAMING ACTION

Appropriation Account Title
AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)

DoD Serial Number
FY 89-14 PA

Component Serial Number
FY 89-10 PA

(Amounts in Thousands of Dollars)

Line Item	*Program Base Reflecting Congressional Action*		*Program Previously Approved by Sec Def*		*Reprograming Action*		*Revised Program*	
	Quantity	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
				PRIOR APPROVAL ACTION				
MISSILE PROCUREMENT, AIR FORCE, 1989/1991								
Budget Activity 1: Ballistic Missiles								
Peacekeeper (M-X)	12	806,980	12	806,980	-	-3,000	12	803,980
EXPLANATION: Funds available due to revised requirements. Restoration of these funds will not be required in subsequent fiscal years.								
Budget Activity 2: Other Missiles								
TACIT RAINBOW	-	71,967	-	71,967	-	-1,209	-	70,758
EXPLANATION: Funds are required for a higher priority program. Restoration of these funds will be required in subsequent fiscal years.								
AIM-7F/M Sparrow	354	54,000	354	54,000	-180	-21,396	174	32,604
EXPLANATION: Funds are required for a higher priority program. Air Force production ends in FY 1989. Restoration of these funds will not be required in subsequent fiscal years.								
AIM-9L/M Sidewinder	760	48,319	760	48,319	-	-11,100	760	37,219
EXPLANATION: Funds are required for a higher priority program. Air Force production ends in FY 1989. Restoration of these funds will not be required in subsequent fiscal years.								
AGM-65D Maverick	2,540	260,410	2,540	260,410	-	-1,000	2,540	259,410
EXPLANATION: Funds are required for a higher priority program. Restoration of these funds will be required in subsequent fiscal years.								

UNCLASSIFIED

UNCLASSIFIED
CLASSIFICATION

REPROGRAMING ACTION

Appropriation Account Title
AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)

DoD Serial Number
FY 89-14 PA

Component Serial Number
FY 89-10 PA

(Amounts in Thousands of Dollars)

Line Item	*Program Base Reflecting Congressional Action*		*Program Previously Approved by Sec Def*		*Reprograming Action*		*Revised Program*	
	Quantity	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
			PRIOR APPROVAL ACTION					
AGM-88A-HARM	893	216,135	893	216,135	-	-3,000	893	213,135
EXPLANATION: Funds are required for a higher priority program. Restoration of these funds will be required in subsequent fiscal years.								
Budget Activity 5: Other Support								
Global Positioning (M/P)	XX	75,644	XX	75,644	XX	-300	XX	75,344
EXPLANATION: Funds available due to revised requirements. Restoration of these funds will not be required in subsequent fiscal years.								
Def Meteorological Sat Prog (M/P)	1	141,292	1	141,292	-	-400	1	140,892
Less: Adv Proc (PY)	XX	-51,279	XX	-51,279	-	-	XX	-51,279
		90,013		90,013		-400		89,613
EXPLANATION: Funds available due to revised requirements. Restoration of these funds will not be required in subsequent fiscal years.								
DMSP Adv Proc (CY)	XX	69,300	XX	69,300	XX	-300	XX	69,000
EXPLANATION: Funds available due to revised requirements. Restoration of these funds will not be required in subsequent fiscal years.								
Defense Satellite Comm System (M/P)	XX	54,412	XX	54,412	XX	-330	XX	54,082
EXPLANATION: Funds available due to revised requirements. Restoration of these funds will not be required in subsequent fiscal years.								

UNCLASSIFIED
CLASSIFICATION

Page 5 of 11 Pages

REPROGRAMING ACTION

Appropriation Account Title AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)	*DoD Serial Number* **FY 89-14 PA**
Component Serial Number FY 89-10 PA	*(Amounts in Thousands of Dollars)*

	Program Base Reflecting Congressional Action		*Program Previously Approved by Sec Def*		*Reprograming Action*		*Revised Program*	
Line Item	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
PRIOR APPROVAL ACTION								
Medium Launch Vehicle	8	270,755	8	270,755	-	-1,000	8	269,755
Less: Adv Proc (PY)	XX	-28,200	XX	-28,200	-	-	XX	-28,200
		242,555		242,555		-1,000		241,555

EXPLANATION:
Funds available due to revised requirements. Restoration of these funds will not be required in subsequent fiscal years.

TOTAL REPROGRAMING DECREASES: (MISSILE PROCUREMENT, AIR FORCE, 1989/1991) -43,035

RESEARCH, DEVELOPMENT, TEST AND EVALUATION, AIR FORCE, 1989/1990

Budget Activity 2: Advanced Technology Development

Line Item	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
0603106f Logistics Systems Technology		15,000		14,906		-55		14,851
0603109f INEWS/ICNIA		37,423		36,995		-137		36,858
0603202f Aerospace Prop Subsys Integration		21,099		20,860		-77		20,783
0603203f Adv Avionics for Aerospace Vehicles		25,114		24,861		-92		24,769
0603205f Aerospace Vehicle Technology		21,439		21,226		-78		21,148
0603211f Aerospace Structures		27,921		27,550		-102		27,448
0603216f Aerospace Propulsion and Power Tech		32,666		32,318		-120		32,198

UNCLASSIFIED

UNCLASSIFIED
CLASSIFICATION

Page 6 of 11 Pages

REPROGRAMING ACTION

Appropriation Account Title
AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)

DoD Serial Number
FY 89-14 PA

Component Serial Number
FY 89-10 PA

(Amounts in Thousands of Dollars)

Line Item	*Program Base Reflecting Congressional Action*		*Program Previously Approved by Sec Def*		*Reprograming Action*		*Revised Program*	
	Quantity	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
		PRIOR APPROVAL ACTION						
0603231f Crew Systems Technology		20,459		20,265		-75		20,190
0603245f Adv Fighter Tech Integration		23,980		23,796		-88		23,708
0603452f Very High Speed Integrated Circuits		44,086		43,889		-162		43,727
0603601f Conventional Weapons		25,301		25,072		-92		24,980
0603605f Advanced Weapons Technology		89,494		88,685		-327		88,358
0603789f C3I Technology Development		18,795		18,720		-69		18,651
Budget Activity 3: Strategic Programs								
0603311f Advanced Strategic Missile Systems		143,836		142,477		-523		141,954
0603364f Short Range Attack Missile II		201,467		199,839		-733		199,106
0603367f Relocatable Target Capability Prog		19,705		19,624		-72		19,552
0604226f B-1B		221,591		220,053		-807		219,246
0604312f ICBM Modernization		890,000		880,965		-3,668		877,297
0101213f Minuteman Squadrons		61,069		61,069		-224		60,845

UNCLASSIFIED

UNCLASSIFIED
CLASSIFICATION

Page 7 of 11 Pages

REPROGRAMING ACTION

Appropriation Account Title AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)	*DoD Serial Number* *FY 89-14 PA*
Component Serial Number FY 89-10 PA	

(Amounts in Thousands of Dollars)

Line Item	*Program Base Reflecting Congressional Action*		*Program Previously Approved by Sec Def*		*Reprograming Action*		*Revised Program*	
	Quantity	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
PRIOR APPROVAL ACTION								
0101313f War Planning ADP - SAC		15,300		15,300		-56		15,244
0102310f NMCC - TW/AA Systems		70,616		70,616		-200		70,416
0102311f NMCC - Space Defense Systems		22,982		22,982		-153		22,829
0102417f Over-The-Horizon Backscatter Radar		19,201		19,201		-70		19,131
0102423f Ballistic Msl Early Warning System		25,362		25,362		-92		25,270
0102431f Defense Support Program (DSP)		101,632		101,632		-1,975		99,657
0102436f Command Center Process/Display Sys		26,939		26,939		-98		26,841
0303131f Minimum Essential Emer Comm Network		41,033		41,033		-151		40,882
0303154f WIS Joint Program Management Office		66,363		66,363		-240		66,123
0303601f MILSTAR Sat Comm Sys (AF Terminals)		310,347		310,347		-1,368		308,979
0303603f MILSTAR Satellite Comm System		277,080		277,080		-1,218		275,862

EXPLANATION:
These funds are made available for higher priority use and will result in reduced levels of effort and/or schedule delays. Restoration of these funds will be required in subsequent fiscal years.

UNCLASSIFIED

UNCLASSIFIED
CLASSIFICATION

Page 8 of 11 Pages

REPROGRAMING ACTION

Appropriation Account Title AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)	*DoD Serial Number* **FY 89-14 PA**
Component Serial Number FY 89-10 PA	*(Amounts in Thousands of Dollars)*

	Program Base Reflecting Congressional Action		*Program Previously Approved by Sec Def*		*Reprograming Action*		*Revised Program*	
Line Item	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
		PRIOR APPROVAL ACTION						
Budget Activity 4: Tactical Programs								
0604236f Infrared Search & Track Sys (IRST)		4,872		4,870		-228		4,642
0604242f Adv Tactical Aircraft		35,000		34,800		-128		34,672
0604250f Integrated BW/CNI Development		122,995		121,985		-450		121,535
0604268f Acft Engine Component Improve Prog		94,510		93,897		-446		93,451
0604270f BW Development		98,000		97,439		-285		97,154
0604601f Chemical Biological Defense Equip		19,000		18,745		-68		18,677
0604602f Armament Ordnance Development		19,158		18,996		-70		18,926
0604607f Wide-Area Anti-Armor Munitions		26,752		26,596		-98		26,498
0604617f Air Base Operability		14,018		13,838		-51		13,787
0604706f Life Support System		16,914		16,850		-62		16,788
0604725f Combat Identification Systems		85,196		84,449		-308		84,141
0604733f Surface Defense Suppression		39,787		39,176		-144		39,032

UNCLASSIFIED

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CLASSIFICATION

Page 9 of 11 Pages

REPROGRAMING ACTION

Appropriation Account Title AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)	*DoD Serial Number* ***FY 89-14 PA***
Component Serial Number FY 89-10 PA	*(Amounts in Thousands of Dollars)*

Line Item	*Program Base Reflecting Congressional Action*		*Program Previously Approved by Sec Def*		*Reprograming Action*		*Revised Program*	
	Quantity	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
		PRIOR APPROVAL ACTION						
0604770f JSTARS		238,070		236,544		-873		235,671
0604779f Jt Interoperability Tac Cmd/Cntrl		6,079		6,021		-200		5,821
0207129f F-111 Squadrons		21,541		21,541		-100		21,441
0207130f F-15 Squadrons		89,056		89,056		-450		88,606
0207133f F-16 Squadrons		26,461		26,461		-98		26,363
0207215f TR-1 Squadrons		102,208		102,208		-375		101,833
0207217f Follow-On Tactical Recon Sys (TARS)		56,562		56,562		-209		56,353
0207417f Airborne Warning & Control System		119,000		119,000		-436		118,564
0207423f Advanced Communications Systems		10,806		10,806		-100		10,706
0303605f Satellite Communications Terminals		17,994		17,994		-66		17,928
0502610f A-7 Squadrons (ANG)		83,288		83,288		-307		82,981

EXPLANATION:
These funds are made available for higher priority use and will result in reduced levels of effort and/or schedule delays. Restoration of these funds will be required in subsequent fiscal years.

UNCLASSIFIED

UNCLASSIFIED
CLASSIFICATION

Page 10 of 11 Pages

REPROGRAMING ACTION

Appropriation Account Title							DoD Serial Number	
AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)							FY 89-14 PA	
Component Serial Number FY 89-10 PA	(Amounts in Thousands of Dollars)							
	Program Base Reflecting Congressional Action		Program Previously Approval by Sec Def		Reprograming Action		Revised Program	
Line Item	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
a	b	c	d	e	f	g	h	i
		PRIOR APPROVAL ACTION						
Budget Activity 5: Intelligence and Communications								
0305114f Traffic Cntrl/Approach/Landing Sys		30,114		30,114		-110		30,004
0305164f NAVSTAR Global Pos Sys (User Eq)		47,700		47,700		-175		47,525
0305165f NAVSTAR GPS (Space/Grd Segments)		48,232		48,232		-177		48,055

EXPLANATION:
These funds are made available for higher priority use and will result in reduced levels of effort and/or schedule delays. Restoration of these funds will be required in subsequent fiscal years.

Line Item	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
Budget Activity 6: Defensewide Mission Support								
0603402f Space Test Program		44,996		44,791		-164		44,627
0604227f Flight Simulator Development		66,800		66,047		-242		65,805
0604609f R&M Maturation Tech Insertion		18,760		18,649		-68		18,581
0604735f Range Improvement		20,065		20,065		-74		19,991
0604755f Improved Capability for DRBE		50,708		50,708		-187		50,521
0605708f Nav/Radar/Sled Track Test Spt		20,545		20,545		-76		20,469

UNCLASSIFIED

UNCLASSIFIED
CLASSIFICATION

Page 11 of 11 Pages

REPROGRAMING ACTION

Appropriation Account Title AIRCRAFT PROCUREMENT, AIR FORCE, 1989/1991 (Includes Transfers)	*DoD Serial Number* **FY 89-14 PA**
Component Serial Number FY 89-10 PA	*(Amounts in Thousands of Dollars)*

Line Item	*Program Base Reflecting Congressional Action*		*Program Previously Approved by Sec Def*		*Reprograming Action*		*Revised Program*	
	Quantity	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*	*Quantity*	*Amount*
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
		PRIOR APPROVAL ACTION						
0605863f RDT&E Aircraft Support		52,826		52,826		-195		52,631
0305110f Satellite Control Facility (SCF)		89,303		89,303		-230		89,073
0305119f Space Boosters		483,485		483,485		-3,500		479,985
0305130f Consolidated Space Operations Center		35,745		35,745		-231		35,514
0305160f Def Meteorological Satellite Prog		53,364		53,364		-196		53,168
0305171f Space Shuttle Operations		40,515		40,515		-149		40,366
0708011f Industrial Preparedness		97,911		97,911		-360		97,551
0708026f Product/Reliable/Avail/Maintain Prog		15,398		15,398		-57		15,341

EXPLANATION:

These funds are made available for higher priority use and will result in reduced levels of effort and/or schedule delays. Restoration of these funds will be required in subsequent fiscal years.

TOTAL REPROGRAMING DECREASES: (RESEARCH, DEVELOPMENT, TEST AND EVALUATION, AIR FORCE, 1989/1990) -24,865

TOTAL REPROGRAMING DECREASES: -125,000

APPROVED (Signature and Date)

William H. Taft

William H. Taft, IV 24 MAR 1989
Deputy Secretary of Defense

DD 1415-1

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CLASSIFICATION

Replaces DD Form 1415-1 1 Jul 79, which is obsolete

PURPOSE OF REPROGRAMMING

Mr. **Hefner**. Last year the Combat Talon II program experienced severe difficulties mostly due to problems with the terrain following, terrain avoidance radar produced by Emerson Electric.

The subsequent program restructuring increased total costs by $357 million or more than 25 percent. The planned buy is for 24 aircraft at a total program unit cost of approximately $70 million.

First of all, why do you need 24 aircraft? What are the plan beddown locations, and why do you need four aircraft for the training program? How would the Air Force deploy a total fleet of 22 aircraft?

General **Larson**. Sir, 24 aircraft, we believe is a requirement validated at least in the Department by three different CINCs to fill the current shortfall in long-range infiltration and/or resupply of the special operational forces. I think it may be compounded as a requirement depending upon the status of the CV-22 program.

The planned beddown locations are Hurlburt Field in Florida, Kirtland Air Force Base in New Mexico, and then there are two overseas ———.

We need four aircraft for training: two E models and two H models. They will accommodate 20 crews per year in a flow through the training, that is ten crews per each model. There are two additional aircraft at Kirtland. ———. So the best way to conduct the training and make sure we can always fulfill our combat commitment is to have at least four aircraft in the training program at Kirtland.

Mr. **Hefner**. One of the results of the restructuring was to extend the flight test program. Could you bring the Committee up to date on recent testing with emphasis on the terrain-following radar.

General **Larson**. Yes, sir, we think we are on track now with the flight test program. As you know, we started the program in October of 1988 and we began the TF/TA testing in May of this—March of this year.

To date, we have 330 hours of flight test for the aircraft and the radar. We still plan completion by May of 1990 and everything we can see points to a successful program to date.

I neglected to answer the last of your four questions, sir, from the previous one. On the 22 aircraft, if we were asked to accept only 22, then we would bring down one each at the overseas bases.

Mr. **Hefner**. You would do what, I'm sorry?

General **Larson**. Instead of 24 aircraft, 22 would mean we put one less at each of the overseas bases ———.

SOURCE OF FUNDS

Mr. **Hefner**. Forty percent of the 125 million is from aircraft procurement spares. Just yesterday we had a hearing on spares and the Air Force witness was saying that based on congressional actions and other budget pressures, it was getting increasingly difficult to maintain readiness.

Yet here we see the Air Force offering up $50 million in spares money. What is going on here? What is this saying to us about the priority of spares within the Air Force when you are offering up $50 million?

General **Larson**. Mr. Chairman, you are correct.

Mr. **AuCoin**. That was yesterday, today is today.

General **Larson**. It is difficult. This is a decision where, in the judgment of the Air Force, the program for the MC-130H was of a higher priority than the spares sourcing. It is nothing more than that. We are trying to hold our spares account as best we can, but this took the higher priority.

Mr. **Hefner**. The B-2 program is slipping so badly, why couldn't you take money from that account. Could that be done?

General **Larson**. Sir, I couldn't answer that specifically. As you know, we took quite a bit of money from the B-2 program in our budget submission and how that will be spread in the quantities that will buy is still to be determined, as Mr. Cheney indicated in an upcoming Defense Acquisition Board. Before that board makes its findings, it would be foolish of me to say there is additional, extra money in the B-2 line.

Mr. **Hefner**. It seems obvious that it is. We are not trying to put you on the spot, but it seems obvious that there would be with the slippage that we have in that schedule.

Mr. AuCoin.

Mr. **AuCoin**. Mr. Chairman, the reprogramming document indicates that—looking at page 11, the explanation is these funds are made available for higher priority use and will result in reduced levels of effort and/or schedule delays. Restoration of these funds will be required in subsequent fiscal years.

Staff tells us that 70 percent of the proposed sources in this reprogramming will have to be restored in future years. Why shouldn't the Committee insist on better sources with less programmatic effect in looking at a reprogramming request of this type?

General **Larson**. Sir, I think we are at the point where in order to do that, we would have to cancel programs. In other words, as long as we can continue to try to field what we are fielding within the top line we are given, we are going to have to make adjustments and come back and try to recover those adjustments in the out years. The alternative would be to cancel programs.

Mr. **AuCoin**. What would you have to cancel if this reprogramming were not approved?

General **Larson**. When you mentioned the 70 percent, and I realize there are a lot of small things in going through this list and that was intentional so we can maintain flexibility and keep the programs going, that if we couldn't do that and we had to take the amount equivalent to that 70 percent, it would probably mean that we would have to cancel programs, maybe an additional buy of air-to-air missiles—I don't know what program it would be.

Mr. **AuCoin**. I am just trying to tie in with what the Chairman has asked you. It seems to me the Air Force ought to look at major programs that have slippage, the B-2 is a good example.

General **Larson**. Yes, sir.

Mr. **AuCoin**. And rather than come to us with a reprogramming request, where we would have to come back and undo the transfer that we are—replenish the sources that are being used for this transfer, we ought to look at major program slippage and I think you should look at those sources, such as the B-2, for reprogramming rather than interrupting something like this.

General **Larson**. We felt at the time that we had used all the slippage funds, if you will, out of the B-2 program in other areas. We may have a slightly different story, depending on the results of the Defense Acquisition Board. But it is currently the Air Force's feeling that those funds, due to slippage of the program, are being used elsewhere.

Mr. **AuCoin**. Well, this is a reprogramming action currently before our Committee, but the net effect of it is if it is approved, as it is submitted, is to appropriate an additional $87 million at some later date to make whole the programs used as sources.

General **Larson**. Yes. sir.

Mr. **AuCoin**. Would you agree with that?

General **Larson**. Yes, sir. The way the reprogramming is submitted——

Mr. **AuCoin**. We are laying down one large IOU that will have to be repaid out in the future.

General **Larson**. Sir, as you know better than I, it won't always occur that way because some of those sources will turn out to be shortfalls that are taken care of within the program itself, but if we didn't ask for a revisit for those particular sources, I think it would be foolish on our part not to try to recover those programs and keep them on track if we needed to recognizing we have to trade back and forth in any given year.

Mr. **AuCoin**. I guess my message to you is, from my standpoint, it is a mistake to look at sources that are obviously going to have to be replenished later. The Service could do a better job in looking at sources for your programs here.

General **Larson**. Yes, sir.

Mr. **Hefner**. Just to follow up on what the gentleman said, we had some very impassioned testimony here yesterday about spares and here you are giving up $50 million, so I hope whoever is setting the priorities knows what they are doing.

I know that we always manage to look after readiness because we feel it is something that we need to address.

When Secretary Weinberger was here, he suggested we cut the ammunition supply from 25 to 21 or 22 days. That is one thing we will react to, you know we will not do that.

But I just hope whoever is setting the priorities will take a hard look at it. Thank you, General. We will have some additional questions to be answered for the record.

General **Larson**. Thank you.

[**Clerk's note**.—Questions submitted for the record and the answers thereto follow:]

MC-130H COMBAT TALON II TESTING

Question. One of the results of the restructuring was to extend the flight test program. Bring the Committee up to date on recent testing, with emphasis on the terrain following radar.

Answer. The flight test program is going quite well with positive results for all completed and ongoing testing. To date, we have accumulated over 340 flight ours on five test aircraft. The very complex integrated avionics suite installed in the aircraft is working very well, and the test crews are uniformly pleased with its performance.

The multimode radar is functioning in all modes. The precision ground map, and the weather map modes are working extremely well. The terrain following/terrain avoidance (TF/TA) modes are working better than most experts expected this early in the flight test program. TA, the initial radar test mode, has provided excellent results from the start. Because of safety of flight considerations, TF mode is instrumented to issue "pull up" commands whenever any one of dozens of built-in-tests (BIT) indicates an out of tolerance condition. The first TF flights were used to record, isolate, and subsequently correct a number of false BIT indications. This is a very normal situation at this point in flight test. Recent flights have shown the TF mode is operating as intended. Software fixes for all problems have been identified and more refinements are on the way. This is a success story for a new TF/TA radar.

Question. Explain the current contractual situation including priced option expiration dates.

Answer. We have firm fixed priced options with Lockheed for delivery of basic C–130H airframes. These options are priced by the calendar year (CY) in which the airframes are to be delivered. Since Lockheed builds these airframes to a special configuration for Combat Talon II, Lockheed must know of our firm intent lead time away from desired delivery. Our opportunity to take delivery of fiscal year 1989 Combat Talon II airframes in Calendar Year 1990 expires in June 1989.

We have no contractual priced options for the modification work with IBM.

We are on contract with Lockheed for a total of 18 airframes through fiscal year 1988 buy. We are on contract with IBM for a total of 11 Combat Talon II modifications through the fiscal year 1987 buy.

We have proposals for IBM for either 7 fiscal year 1988 modifications or 11 fiscal year 1989 modifications as a combined buy. We have completed a "Should Cost" on these proposals and expect to enter negotiations on the prices in June 1989. Our fiscal year 1990 budget request assumes that reprogramming will be approved by that time, and that we will do the combined buy and thereby benefit from the inherently better economic order quantities.

If the reprogramming is not approved by the end of June 1989, there will be cost and schedule impact for both the fiscal year 1989 basic C-130H airframes and the radars. The radar proposal expires 1 August 1989. Contract award beyond this date will result in a production break.

Question. What happens if you do not get Congressional approval of the reprogramming by the end of June or the end of August?

Answer. Our intention is to combine the fiscal year 1988 and fiscal year 1989 buys from IBM and thereby realize the advantage of more economic order quantities. If the reprogramming is not received by the end of June, but is approved before the end of August 1989, the cost of both the C-130H airframes and the radars will increase. The cost of the four fiscal year 1989 C-130H airframes from Lockheed will increase by $94,000 each, and we will miss the opportunity to take delivery of them in Calendar Year 1990. The cost of the four fiscal year 1989 radars will increase by an estimated $4 million due to a production break.

If the reprogramming is not approved by the end of August, but is subsequently approved, then much greater consequences come into play. The program will require funding in an amount greater than the $125 million to compensate for higher costs to both the fiscal year 1988 and fiscal year 1989 buys. The longer the delay, the greater the cost. After December 1989, the reprogramming for fiscal year 1989 will no longer be viable since all work-arounds will have run out. We will have incurred a defacto year slip and the total cost impact to a 24 aircraft program is estimated to be $30-50 million.

Question. Is the 1900 Combat Talon II budget request viable without approval of the 1989 reprogramming?

Answer. No. The fiscal year 1990 budget request assumes a continuous production line. Denial of the fiscal year 1989 reprogramming request will mean that no aircraft are bought in fiscal year 1989. Any fiscal year 1990 buy would then come after a production break between the fiscal year 1988 and fiscal year 1990 buys. The cost impact of this year slip is estimated to be $30-50 million.

REPROGRAMMING SOURCES

Question. According to the reprogramming document, 70 percent of the proposed sources will have to be restored in future years. In addition, only 7 percent of the reprogramming sources came from the same program activity, Aircraft Procurement. If the Committee approves this reprogramming, why shouldn't it insist on better sources with less programmatic effect?

Answer. The question assumes that in such a large account as Air Force investment and modernization, sources could be found that do not have programmatic impacts—a sort of operating "slush fund" on the margin in excess of our current needs. While this is the net effect of execution, the dollars available are not now of the magnitude nor are our management systems fine grained enough to handle the volume of unfunded requirements. Over the past several years the Air Force has been forced to live within an increasingly constrained fiscal environment. At the same time, we have also forced into major reprogramming actions due to fact-of-life problems and urgent unfunded requirements. In the acquisition area we have reprogrammed for fiscal year 1988 almost $2 billion dollars (about 5.4 percent of acquisition total obligation authority) with over $400 million transferring out of the investment accounts in support of other budget shortfalls in CHAMPUS, civilian pay, Contra Aid, foreign currency adjustments and flying hours, etc. So far in fiscal year 1989, we have reprogrammed almost $1.5 billion dollars with over $250 million going out of the investment accounts in support of similar serious unfunded requirements in fiscal year 1989 for the O&M appropriation.

In dealing with the O&M appropriation shortfalls, and other fact-of-life issues, we are faced with many difficult resource allocations decisions. Our actions, though they may involve programmatic impacts, are necessary in order to solve our enormously difficult funding problems—the $125 million Special Operations Forces Combat Talon aircraft reprogramming request is no exception.

Given that our budget is declining and our shortfalls in operating and investment accounts are growing, few sources would be without programmatic impacts. The fact that over seventy pecent of our proposed sources may have to be restored in future years should be looked upon as a management success for those sources we were able to identify that will have no programmatic impact. For those sources that do have programmatic impact in future years we will work those issues either by below threshold reprogramming actions or by program restructure within our future budget submissions to OSD and the Congress to live within Air Force approved funding levels. Also, we are very limited in our funding flexibility within the weapon system lines of the Aircraft Procurement appropriation—both in terms of dollar amounts and number of line items. Given the magnitude of the acquisition reprogramming to date and in order to avoid reductions to quantities of aircraft and related support equipment, we had no alternative but to examine all programs in the RDT&E and Aircraft and Missile Procurement appropriations and offer sources that would incur the least amount of programmatic impact.

In summary, we have provided to the Committee the best available sources for the SOF MC-130H reprogramming request, given the magnitude of the many other reprogramming we have faced to date. Further, we are now beyond the point of avoiding any nonprogrammatic impact to our programs—RDT&E or Procurement. To provide any other sources would only carry with it additional programmatic impact.

SPARES

Question. Forty percent of the sources, or $50 million, is from aircraft procurement spares. Just yesterday we had a hearing on spares and the Air Force witness was saying that based on Congressional actions and other budget pressures it was getting increasingly difficult to maintain readiness. And yet here we see the Air Force offering up $50 million in spares money. Is the spares program tight or not?

Answer. Yes. Due to fiscal constraints, Congressional reductions to fiscal years 1987-1989 appropriations and the necessity to balance readiness with force structure and modernizations, aircraft replenishment investment spares have experienced significant shortfalls. Fiscal years 1988 and 1989 have funds for only 79 and 83 percent of peacetime requirements. Since these requirements are leadtime away, this will put an additional burden on the repair process for workarounds to support the flying hour program. In fiscal year 1989 only $187.0 million of WRSK/BLSS was purchased, and no WRSK/BLSS was funded in fiscal year 1989. This quickly degrades our wartime sustainability for the first 30 days of a war by over 15 percent through fiscal year 1981.

Initial spares represent the first two years of requirements for peacetime operations. Any shortfalls will later increase replenishments spares requirements and risk a possible increase in the not mission capable for supply rates. Such an initial spares reprogramming is reluctantly done by the Air Force as a short term solution to meet a higher priority need.

Question. What does this reprogramming say about the priority of spares within the Air Force?

Answer. Spares has been and remains a high priority item within the Air Force; however, there are higher priority programs. This reprogramming clearly demonstrates the Air Force's commitment to Special Operations Forces modernization.

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. **HEFNER**. The Committee stands adjourned until 1:30 this afternoon.

WITNESSES

Bentley, Hon. Helen	149
Bossier, A.L., Jr	232
Bracken, Maj. Gen. E.R	679
Brailsford, Maj. Gen. M.D	679
Carlson, Rear Adm. W.C	443
Cavallini, N.M	1
Creelman, W.A	271
Donnelly, R.E	271
Dunn, Vice Adm. R.F	349
Finch, Capt. D.L	443
Freitag, Maj. Gen. Merle	815
Gee, Rear Adm. G.N	443
Guenther, Brig. Gen. Otto	73
Haggett, W.E	187
Haller, H.T	271
Harris, Lt. Gen. B.R	73
Hekman, Vice Adm. Peter, Jr	583
Kind, Maj. Gen. P.A	73
Klinges, D.H	217
Larson, Maj. Gen. George	865
Loftus, Rear Adm. S.F	443
Malley, Rear Adm. K.C	443
Meinig, Rear Adm. G.R	443, 835
Moore, Rear Adm. R.M	679
Moore, Robert	271
Nyquist, Vice Adm. John	583
Pitman, Lt. Gen. C.H	349
Pyatt, Everett	271, 583
Quinn, T.P	1
Reay, J.H	679
Smith, G.A	1
Stocker, John	170
Toney, Dennis	198
Vortmann, Richard	198
Walsh, Rear Adm. R.M	835
Wilkinson, Vice Adm. J.B	349

INDEX

AIRCRAFT PROCUREMENT, NAVY

Page

- A-6 Rewing and Modifications 437
- Advanced Tactical Fighter (ATF) 430
- Advanced Tactical Fighter (ATF) 431
- AH-1 Helicopters for Reserves 409
- Aircraft Requirements, Marine Corps 427
- Aircraft Support, Future 415
- Airlift, Marine Corps 435, 437
- Amphibious Assault Casualties 400
- Anti-Submarine Warfare (ASW), Air 420
  - Helicopter ASW 429
- Bases Overseas 407
- CH-53E Requirements 414
- C-130 Logistics Aircraft 397
  - Naval Reserve C-130s 397
- Carrier Airwing Requirements 418, 432
- E-2C Aircraft 440
- E-6A Operational Testing 425
- EA-6B Prowler Inventory 424
- F-14D (TOMCAT) Aircraft 392, 430
  - Engines 410
  - Service Life 421
- F/A-18 Radar Upgrade 430
- Flying Hours 416, 431
- Force Planning 432
- Improved Acoustic Detection System (IPADS) 398
- Individual Changes 432
- Introduction 349
- KC-130 Tankers, Marine Corps Reserve 398
- Losses, Aircraft 410
- Medium Attack Aircraft 418, 436
- Modifications Backlog 441
- Procurement Plan, Five Year 403
- Readiness and Safety 392
- SH-60F, Aircraft Carrier Inner-Zone ASW Helicopter 437
- Statement of Lt. General Pitman 380
- Statement of Vice Admiral Dunn 352
- Summary Statement of Admiral Dunn 350
- Summary Statement of General Pitman 379
- T-45A GOSHAWK Testing 421, 429
- V-22 Osprey Aircraft 405
  - Alternatives 399

Page
V-22 Osprey Aircraft—Continued
  Compared to CH-53 and Ch-60 411
  Continuation 401
  Special Operations Forces, for 427

ARMY COMMAND, CONTROL AND COMMUNCIATIONS

Advanced Field Artillery Tactical Data System (AFATDS) 127
All Source Analysis System (ASAS) 129
Army Data Distribution System (ADDS) 123
Army Sustaining Base Automation Program 146
Army Tactical Command and Control System (ATCCS) 125
Budget Issues, Overall C3I 112
Command and Control 105
Electronic Warfare Threat 116
Forward Area Air Defense Command and Control (FAADC2) 131
Grenada, Communications During 94
Headquarters Automation 138
Introduction 73
Joint Tactical Communications program (TRI-TAC) 133
MILSTAR Satellite Terminals 134
Mobile Subscriber Equipment (MSE) 106, 113
Single Channel Ground and Airborne Radio System (SINCGARS) 93, 102, 110, 118
Soviet Jamming 95
Statement of Lt. General Harris 76
Summary Statement of General Harris 74
Supercomputers 143
Tactical Army Combat Service Support Computer System (TACCS) 135
Theater Army Medical Management Information System (TAMMIS) 136
Vehicle Intercommunications System 97

COMMAND, CONTROL AND COMMUNICATIONS—OVERVIEW

Anti-Ballistic Missile (ABM) Treaty 33
Budget and the Budget "Scrubs", Communications 45
Budget Priorities 44
Cheyenne Mountain 64
Communications Architecture 28
Drug Interdiction, Role of DOD C3 in 38, 46
Electronic Warfare 36
HAVE QUICK 56
Identification, Friend or Foe (IFF) Systems 31
Interoperability 24, 26
  Communications and the Air Land Battle 48
  Reduction in Funds for 47
Introduction 1
Jamming Threat 24
Joint Tactical Communications Program (TRI-TAC) 68
Joint Tactical Information Distribution System (JTIDS) 58
MILSTAR Satellite Communications System 53
Missile Surveillance, Strategic 31
Multifunction Information Distribution System (MIDS) 61
Navy C3 63
Over-the-Horizon Radar 40, 62

Page
- Personnel Security 38
- Secure Telephone Unit (STU-III) 39, 50
- Single Channel Ground and Airborne Radio System (SINCGARS) 35
- Statement of Dr. Smith 9
- Strategic Defense Initiative (SDI) 42
- Strategic Warning and Communications 28
- Summary Statement of Dr. Smith 1
  - C3 Resources by Appropriation 3
  - C3 Resources by Component 6
  - C3 Resources by Mission Area 8
  - Communications Security 3
  - Fiscal Year 1990 Budget Request 3
  - Modernization of C3 Systems 2
  - Summary 8
  - Tactical C3 Systems 2
- TACAMO Replacement 35
- Tactical Communications 29
- Tactical Warning/Attack Assessment 55
- UHF Follow-up Satellite 51
- WWMCCS ADP Modernization 70

FISCAL YEAR 1989 REPROGRAMMINGS

- Air Force reprogrammings 865
  - Airborne Self Protection Jammer (ASPJ) 865
    - Introduction 865
    - Reprogramming Document (89-1N Rev.) 867
    - Statement of Major General Larson 865
  - MC-130H Combat Talon II 869
    - Introduction 869
    - MC-130H Combat Talon II Testing 884
    - Purpose of Reprogramming 882
    - Reprogramming Document (89-14PA) 871
    - Reprogramming Sources 887
    - Source of Funds 882
    - Spares 888
    - Statement of Major General Larson 870
- Army reprogrammings 815
  - Army Computers 822
    - Introduction 822
    - Need for Reprogramming 825
    - Reprogramming Document (89-11PA) 824
    - Statement of Major General Freitag 823
  - M-1 Tank Procurement and Modification 815
    - Introduction 815
    - Language, Fiscal Year 1989 819
    - Modification, M-1 Tank 821
    - Procurement, Fiscal Year 1989 Tank 820
    - Procurement Fiscal Year 1988, M-1 Tank 819
    - Reprogramming Document (89-6PA) 817
    - Statement of Major General Freitag 816
  - TOW 2 Missiles 829
    - Introduction 829
    - Purpose of Reprogramming 831

Page

Army reprogrammings—Continued
  TOW 2 Missiles—Continued
    Reprogramming Document (89-12PA) 830
    Statement of Major General Freitag 829
Navy reprogrammings 835
  Initial Trainer Acquisition 857
    Enhanced Modular Signal Processor (EMSP) 860
    Introduction 857
    Purpose of Reprogramming 860
    Reprogramming Document (88-43N) 858
    Statement of Rear Admiral Walsh 857
  Operation and Maintenance, Navy 835
    Base Operations Request 853, 854
    Flexibility in the Source Accounts 855
    Introduction 835
    Postal Rate Increase 856
    Reprogramming Document (89-15PA) 838
    Requirement Compared to 1989 Request 853
    Requirement Compared to 1989 Appropriated 853
    Security Upgrade Request 854
    Statement of Rear Admiral Walsh 836
    Total 1989 Requirement 853

SHIPBUILDING AND CONVERSION, NAVY

Aircraft Carrier Groups 639
Appropriation Availability 671
Competition, Public/Private 648, 669
Core Workload 668
Cost Overruns 634
Cost Overruns, Shipbuilding 670
DDG-51 Multiyear Procurement 673
Design Funding 635
Frigate Upgrade Program 640, 659
Frigates Naval Reserve 647
Introduction 583
Landing Craft Air Cushion (LCAC) 650, 651, 655
LHD Program 652
Long Beach Naval Shipyard 667
LSD Cargo Variants 649, 650
MCM-Mine Countermeasure Ships 674
MHC-Coastal Mine Hunter 649, 651, 661, 675
Mine Countermeasures Programs 643
Mine Warfare Ships 640
Minesweepers, Reserve Personnel for 645
New Threat Upgrade 647, 653, 657
Patrol Boats, Special Operations Forces 677
Polyacrylonitrile (PAN) Carbon Fibers 641
Sealift, Reserve Personnel for 653
Sealift Ships 654
Ship Repair, Funding for West Coast 665
Shipbuilding Steel 662
SSBN Force Structure 636
SSN-21 Submarine Contract Prices 660, 672

Page
SSN-688 Program 671
Statement of Mr. Pyatt 586
Statement of Vice Admiral Nyquist 599
Strategic Arms Reduction Talks (START) Negoiations 637
Submarine Forces 655
Summary Statement of Admiral Hekman 633
Summary Statement of Admiral Nyquist 598
Summary Statement of Mr. Pyatt 583
Trident Program 658, 661
T-AGOS Ocean Surveillance Ship Program 677
T-AO Fleet Oiler Program 653, 676
U.S.S. *Enterprise* Overhaul 663
U.S.S. *Iowa* Explosion 633, 671
U.S.S. *Roberts* 633

SHIPBUILDING INDUSTRIAL BASE

Avondale Industries, Inc 232
Bath Iron Works 187
Bethlehem Steel Corporation 217
Commission on Merchant Marine and Defense, Recommendations by the 270
Construction in 1988, Ship 300
Construction Rankings, Ship 267
Contracts, Fixed Price 244
Flag Carriers, United States 341
Introduction 149, 271
National Steel and Shipbuilding Company 198
Recommendations, Shipbuilders Council of America 241
Research and Development, Shipbuilding 242
Responsibility for Sealift, Government 266
Sealift Budget Development 297
Sealift Policy, National 340
Sealift Ships 243
Shipbuilders Council of America 170
Shipbuilding Procedures, Navy 341
Shipyard Productivity, Foreign 244, 299, 303, 339, 342
Ship Shafts, Manufacturing of 340
Statement of Mrs. Bentley 149
Statement of Mr. Creelman 285
Statement of Mr. Donnelly 274
Statement of Mr. Pyatt 295
Subsidies, Foreign 304
Summary Statement of Mr. Creelman 282
    Ready Reserve Force 283
    Shipbuilding Base 282
    Summary 284
Summary Statement of Mr. Donnelly 271
    Defense Manufacturing Board 272
    Industrial Defense Competitiveness 271
    Manufacturing Technology Program 273
    National Sealift Policy 273
Summary Statement of Mr. Pyatt 293
    Mobilization 294
    Sealift and the Ready Reserve Force 294

Page
Technology Transfer, Foreign 245
Wages and Regulations, Cost of 246

SPARE PARTS MANAGEMENT

Aircraft Spares, Reimbursements to the Air Force for Sales of 812
Bubonic Plague Vaccine, Twenty-two year Supply of 813
Buying Spares Too Early 801
B-1B Initial Spares Provisioning 788
Common Use Spares 778
Contracting Process for Spare Parts 777
Contracts, Direct Delivery 779
Depot Maintenance 766
Digital Data Storage 778
Economic Order Quantity, Buying in Excess of 799
Flying Hours 755
Funding Constraints, Adjusting to 772
Introduction 679
Investment Items, Relationship of Spares to 774
Item Visibility 802
Long Supply Inventory Issues 758, 782
Management with OSD, Priority of Spares 785
Manufacturing Source Program, Diminishing 807
Mission Capable Rates 755
On-Order Excesses, Terminating 795
Overpricing of Spares 780
Procurement Lead Time 789
Provisioning 786
Rapid Acquisition of Manufactured Parts (RAMP) 808
Repairable Spares, Investment and 764
Requirements, Forecasting 754
Requirements, Validity of 790
Reverse Engineering 793
Spare, Parts, Funding for 756
Spares Budget Requests, Adequacy of 765
Spares To Support Total Forces, Adequacy of 767
Statement of Major General Bracken 747
Statement of Major General Brailsford 706
Statement of Mr. Reay 684
Statement of Rear Admiral Moore 715
Summary Statement of Admiral Moore 712
    Inventory Growth 712
    Manpower Levels 713
    Readiness 712
    Supply Modernization 713
Summary Statement of General Bracken 746
Summary Statement of General Brailsford 702
    Applicable vs. Inapplicable Inventory 703
    Inventory Growth 702
    Inventory Management Initiatives 704
    Retention and Disposal Policy 703
    Summary 705
    Supply Availability 703

Page
Summary Statement of Mr. Reay 680
    Excess Inventory 682
    Inventory Management 682
    Management Improvements 681
    Spare Parts Inventory 681
    Supply Availability 681
Supply System Effectiveness 760
Transportation of Parts 791
Value Engineering 793
War Readiness Spares Kits (WRSK) 756
War Reserve Requirements 762
War Reserve Stocks 804

WEAPONS AND OTHER PROCUREMENTS, NAVY

AN/SQQ-89 Advanced Video Processor 547
Budget Scrubs on Other Procurement, Navy 564
Communications Security Programs (COMSEC) 566
Enhanced Modular Signal Processor (EMSP) 531, 570
Firefighting Equipment 577
Introduction 443
Meals Ready to Eat 522
Medical Support Equipment 576

Missile Programs:

    HARM Missile 553
    Harpoon Missile 558
    Penguin Missile 539
    Phoenix Missile 547, 556
    Rolling Airframe Missile (RAM) 551
    Tomahawk Missile 559, 575
    Trident II D-5 Missile 541, 549
    Types of 537
MK-38 Expendable Mobile ASW Training Target (EMATT) 563
MK-46 Torpedo Spares 561
MK-48 ADCAP Torpedo 522
    Software Problems 526
MK-50 Advanced Lightweight Torpedo 528, 536, 546
    Draft GAO report 548
    Program Status 548
Molded Case Circuit Breakers 541
Motion to Close 444
Phalanx Ammunition 530, 580
Reactor Power Units 574
Relocatable Over-the-Horizon Radar (ROTHR) 571
Satellite Communications Ship Terminals 565
Sea Lance Acquisition Strategy 545
Secure Telephone Unit (STU-III) 566
Sonobuoys 581
Statement of Rear Admiral Gee 467
Statement of Rear Admiral Loftus 446
Strategic Platform Support Equipment 574
Submarine Advanced Combat System 567

Page
Summary Statement of Admiral Gee 465
Surveillance Towed Array Sensor System (SURTASS) 568
Tactical Air Launched Decoy (TALD) 560
Trident Backfit Activities 544

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